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HISTORY OF RAPID TRANSIT  
DEVELOPMENT  
CITY OF PHILADELPHIA  
1886  
TO  
1928

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Compiled By  
D.E. Parry, Engineer  
Bureau of Engineering  
Public Service Commission  
1928

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## HISTORY OF RAPID TRANSIT DEVELOPMENT IN THE CITY OF PHILADELPHIA.

The first attempt to establish an elevated railroad in this City was made in 1886. A charter was then issued at Harrisburg to a corporation called The Philadelphia and Northeastern Railway Company, and shortly thereafter an ordinance was introduced in Select Council, by the provisions of which the company was empowered to build an elevated railroad over certain streets. This measure was referred to the Joint Committees on Railroads and Street Passenger Railways. Public hearings were held, and the ordinance in due time was reported to Councils with a favorable recommendation.

The Philadelphia and Northeastern Railway Company was chartered under the general laws relating to the construction and regulation of steam railroads. The project was financed by August Belmont, of New York, and a group of bankers of that city. It should be noted that this was more than a decade before the time when Mr. Belmont and his associates undertook to build and operate the first rapid transit railway in New York. Leading citizens of Philadelphia were interested financially in the Northeastern enterprise, prominent among them being William Cramp and his son, Charles H. Cramp, of the Cramp Shipbuilding concern, Mr. William Cramp being first vice-president of the elevated railway company. When the ordinance came up in Select Council for final passage a motion to postpone consideration indefinitely prevailed.

William B. Smith was Mayor of the City at the time. The Bullitt Bill had been enacted by the Legislature, and a radically different system of municipal government was contemplated under its provisions. It was explained by the opponents of the elevated railroad that the Northeastern ordinance would be put in proper shape by the officials of the next administration and that rapid transit to the far northeastern section of the City, including Frankford, would soon thereafter be a reality.

In February, 1887, Edwin H. Fitler was elected Mayor. During his administration, repeated but futile attempts were made to effect the passage of the elevated railway measure.

When Edwin S. Stuart, who was known to be favorably inclined toward the elevated railroad project, became Mayor in April, 1891, a determined drive at once was started by the people of Kensington, Richmond, Frankford, and of the northeastern section of the City generally, to awaken the long slumbering Northeastern ordinance and push it through Councils. This movement was successful, and the measure was approved by Mayor Stuart on June 24, 1891. The financial backers of the project announced immediately that they would get behind other plans for elevated railroads to cover different sections of the City.

While this Northeastern ordinance was pending in Councils, an ordinance was introduced in Common Council on April 17, 1890,





providing for the construction of an underground railroad on Broad Street and other thoroughfares. This may be considered the initial move toward a Broad street subway taken twenty-three years ago. The company seeking this franchise was called The Broad Street Underground Railroad Company. The measure was referred to the appropriate committee, but that was the last that was ever heard of it.

In the latter part of 1891, an ordinance was introduced in Councils to grant a franchise to the Quaker City Elevated Railroad Company to build elevated lines on Market street to the County line and elsewhere in the center of the City. It was passed and approved by Mayor Stuart on February 20th, 1892.

While preparations were in progress for beginning the work of construction on the Northeastern elevated line, a charter was issued at Harrisburg on March 6, 1893, to the Market Street, Richmond and Frankford Elevated Railway Company, a subsidiary to the Northeastern. An ordinance granting a franchise to the new concern to build elevated roads to the north and northeast, beginning at about Eighth and Market streets was presented in Councils and was passed and approved by Mayor Stuart on February 26, 1894.

The several surface street railway companies were not united at that time as they are now under a single holding corporation. They were separate entities, such as the Frankford and Southwark Passenger Railway Company (Fifth and Sixth Streets), Citizens (Tenth and Eleventh), etc. But the Union Passenger Railway Company (Seventh and Ninth) had already consolidated with the West Philadelphia (Market Street) and there had been an amalgamation of the Fourth and Eighth, Green and Coates, Callowhill Street and Girard Avenue lines with the Lombard and South Streets Passenger Railway Company, under the title of the Peoples' Passenger Railway Company, of which John B. Parsons was president. But as a step in the process of unification, two "holding companies" had been formed, the Philadelphia Traction Co., with John B. Parsons at the helm, and the Union Traction Co., in the control of the Widener-Elkins group.

But even before legal consolidation, the various companies had effected an organization for mutual advantages. The president of each company was a member of a body known as the Board of Presidents. E. J. Edwards, president of the Ridge Avenue Passenger Railway Company, was president of the Board.

The Northeastern Company with its franchise for a northeast elevated line started the work of building on Front street, somewhere north of Market. A few piers had been put up when the work was halted by an injunction suit brought by the Board of Presidents of the Passenger Railway Companies of Philadelphia, which sought to restrain the Northeastern Company from proceeding further with its building operations.

The ground upon which the suit was based was that the general railroad laws of the State, under which the charter had been issued to the Philadelphia and Northeastern Company, did not permit the construction of elevated railroads over streets already occupied by passenger railway companies with tracks on the surface. This action was carried through the courts up to the Supreme Court, which finally





upheld the contention of the passenger railway companies and effectually put a stop to the movement for elevated railroads, for the time being at least.

At the session of 1901, the Legislature passed enabling acts premitting the construction of underground and elevated railroads and also acts authorizing the reorganization of the transit systems throughout the State. Later, ordinances were presented in City Councils providing for the carrying out of the terms of the new State laws relating to transit.

The first of these measures revoked "all privileges heretofore granted street passenger railway companies to lay tracks or to erect poles, wires, etc., or to use electric motors on any streets in the City within the time limited by the same privileges, where such permission has not already been accepted and taken advantage of and the time limit in said permission has expired." Then City Councils passed ordinances authorizing the construction of elevated railroads by the:

Market Street Elevated Passenger Railway Company,  
Frankford Elevated Passenger Railway Company,  
and others;

and to authorize the construction of a subway by the Broad Street Subway Passenger Railway Company.

City Councils then enacted other ordinances extending the trolley system in all sections of the City by granting permission to lay tracks on practically all unoccupied streets available for traction purposes. All of these ordinances were approved by Mayor Samuel H. Ashbridge on June 13, 1901. The franchises thus conferred were subsequently acquired by the Market Street Elevated Passenger Railway Company, and later by the Union Traction Company. The latter corporation began work on the Market Street Subway and Elevated road in May, 1904. The portion west of Broad Street was put in operation in 1907, that east of Broad in 1908.

The Market Street Subway and Elevated is now being operated by the Philadelphia Rapid Transit Company under a lease for 999 years. This corporation, which belongs to the class known as "Holding companies," was chartered under the Act of March 22, 1887, and began business as of May 1, 1902, by purchasing outright from the original promoters the charters, stock and franchises of all the proposed rapid transit and surface lines, and leasing for a period of 999 years the Union Traction Company, which controlled 457 miles of surface tracks, mostly within the City limits, as well as the franchise for the Broad Street Subway.

In June, 1907, an ordinance was enacted by City Councils "authorizing the execution of a contract between the City of Philadelphia and the Philadelphia Rapid Transit Company, affecting, fixing and regulating the duties, powers, rights and liabilities of the City and of the Philadelphia Rapid Transit Company and its subsidiary companies, and the relations and respective interests of the contracting parties; providing for the future management and extension of the street railway system controlled by the Philadelphia Rapid Transit Company, and the final acquisition of its leaseholds and property by the City." This measure was made possible by the provisions of an enabling act by the Legislature at the 1907 session.





The ordinance contained the contract between the City and the Philadelphia Rapid Transit Company which is now in force. By its terms, the franchise for building a subway on Broad street was surrendered and released to the City, while the franchise for the construction of the Frankford Elevated Railroad was extended for three years from June 1, 1907. On June 1, 1910, nothing having been started in the way of construction of the Frankford Elevated Road, the franchise expired and was released to the City.

#### ACTION BY THE STATE RAILROAD COMMISSION.

On May 27th, 1910, the said State Railroad Commission employed Ford, Bacon & Davis of New York, to make an examination of the service and equipment of the said company and report upon existing conditions with recommendations.

#### FORD, BACON & DAVIS REPORT

Ford, Bacon & Davis submitted their report on March 7th, 1911. It contains the following brief summary:-

"It is our opinion that while in many particulars the property and service of the Philadelphia Rapid Transit Company compare favorably with other large systems, they are lacking in essential features of good street railway service, upon which, more largely than any other, depend the comfort and convenience of the traveling public.

"While we find the track construction to be substantial, the surface track mileage is larger than the average considering the population served, the overhead line of first class design, the power plants of adequate capacity and fair economy, and the car barn and shop facilities ample; the car equipment, while is the most important part of the physical property from the passenger's standpoint, is distinctly inferior to that of other large American cities; and while the average seats provided for passengers and total car mileage operated throughout the entire day are greater than the average of other cities, the proportion of rush-hour car service to middle-of-the-day service is considerably less than standard practice, resulting in unreasonable over crowding at the times of heaviest traffic."

The following criticisms were made in the report:-

#### RUSH-HOUR CAR SERVICE.

COUNTS OF RUSH-HOUR TRAFFIC. An extended series of observations and passenger counts was made for each line, especially as to operation during the evening or heaviest rush hours in and adjacent to the principal delivery district, which is the central business section bounded by the Delaware River, 17th Street, Cherry and Locust Streets. From these we ascertained the number of passengers on each line during each half hour of the rush hours at the point of maximum loading. We found from our observations and records covering a period of about six months, that the evening rush-hour traffic for Wednesday, October 5, 1910, represented an average for that time of year, and consequently have used in our determinations the count made on that day. We ascertained for each line the number of





passengers carried past the point of maximum loading during each half hour and the number of cars observed, and determined the absolute and the average car loading of each line and of each group of lines by sections of the city. Having thus obtained the number of passengers by half hours from 4 to 7 P.M. carried past the maximum load point of each line, we were in position to make a critical analysis of the service operated and to devise a plan of car service which would provide adequately for this rush-hour traffic.

**LIMITATIONS OF RUSH-HOUR SERVICE.** This problem involves the determination of a standard of reasonable car service for the rush hours, and the definition of practicable rules for loading cars. The extreme limits of such service would be on the one hand, to provide seats for all passengers, and then on the other, to continue the midday car service through this busy period. The maximum number of cars which can be operated is absolutely limited by track and crossing capacity and the necessity of providing sufficient employment for the extra car men. The track as now operated in the delivery district of Philadelphia has not yet been used to its greatest capacity except on some streets. An efficient rerouting of lines, the replacement of present small cars by large motor cars and the use of large trailers, if practicable, would make possible a considerable increase of service in this district.

The Company now schedules in winter about 39% more cars, and in summer about 45% more cars, during the evening rush hour, than on its base schedule during the middle of the day. Other large American cities street railway systems operate as many as 100% more cars during the rush hours than on the base schedule, which proves the feasibility of at least doubling the service during the rush hours with single car operation. With the use of large trailers it is believed that a still larger proportion of rush-hour capacity would be found practicable.

On the other hand, however, there are conditions of finance in the broad sense which place an economic limit upon the amount of car service that can be operated at this time of day. Track and street capacity must also be conserved as far as possible, in the interest of speed of operation.

**REASONABLE CAR LOADING.** Looking from the problem from another standpoint, if the service is proportioned upon the number that the car can accommodate comfortably, both seated and standing, its capacity would be used most efficiently and overcrowding would be prevented.

From careful studies of car capacities, we have found that four square feet of aisle and platform space per standing passenger allows comfortable standing space. This would mean, for the Philadelphia Pay-Within car, two rows of standing passengers with sufficient space for passage between, and a total capacity of 76, of whom 38 would be seated and 38 standing. In other words, for a car with longitudinal or lengthwise seats, the standing capacity would equal the seating capacity. For a cross-seat car like those now operated in Philadelphia with seating capacity of 40, the standing capacity would be 29 and the total 69. If the usual large prepayment platforms are used on the cross-seat car it would accommodate 36 standing passengers or with the seated passengers a





total of 76. Therefore, applying this rule to the cross-seat car, the standing capacity would equal from 60% to 90% of the seating capacity. This standing load is practically within the limits used by other American street railway companies which have given attention to the subject, and as prescribed in some cases by governmental regulations abroad.

We believe this to be a reasonable limit of car loading, and have used it in our calculations and recommendations of rush-hour service.

**LIMITS TO INDIVIDUAL CAR LOADS.** In order to prevent or lessen periodical overcrowding caused by the bunching of cars or passengers, we believe it is necessary to limit the loading of cars to the standard capacity determined. This under ordinary conditions of operation can be accomplished with platform doors or gates which close the entrance and exit when the car is in motion, together with the use of the "Car full" sign.

The reasonable use of the individual car limit and the "car full" sign has been found beneficial by the American companies that have adopted it. This largely does away with the uncomfortable, unsanitary overcrowding, so common at present in many American cities at rush hours, and facilitates the speed and regularity of operation by eliminating the most serious cause of bunching of cars. Such a definite notice also reduces the annoyance of being passed by the motorman.

Efforts to restrict car loading to standards sometimes used abroad met with objection because the limit has been placed at or near the seating capacity. This is unpracticable under American conditions. During the non-rush hours, however, seats should be provided for all passengers. As the traffic increases at the beginning of the rush hours sufficient cars to furnish seats should be added until the maximum schedule is in operation.

**RECOMMENDED RUSH-HOUR SERVICE.** We, therefore, recommend that the Philadelphia Rapid Transit Company should furnish sufficient rush-hour car service to provide the above standard capacity, and should limit individual car loads on a practicable plan, making allowances for extraordinary conditions.

**IMPROVED SERVICE PRACTICABLE IMMEDIATELY.** As the present rush-hour service is considerably less than the standard recommended, this plan cannot be put into effect until additional cars and power are secured.

During the time of construction of this equipment we recommend that the Company operate a service, as far as the number of present cars and the capacity of its power system will permit, which will provide on each line during the busiest half-hour an average car loading equal to the recommended standard of maximum car capacity. This standard of service immediately practicable would require the operation of 1,987 cars, an increase of 315, or 19% over the winter schedule, and of 205 cars, or 11% over the summer schedule. Although this would result in a considerable improvement of car loading there would still be carried regularly maximum loads up to the crowding limit of the car.





RECOMMENDED SERVICE APPLIED TO TRAFFIC OF OCTOBER, 1910.

From a large number of observations both in Philadelphia and elsewhere, we find that the maximum car loads on any line in a half-hour approximate 25% more than the average loading for that half-hour. Thus for example, if 76 is fixed as the maximum load of the Pay-Within car, the average loading for the heaviest half-hour would be 61 passengers. Consequently, our recommendation for standard service would require approximately 25% more cars to pass the maximum point of loading on each line at the busiest half-hour than would be required for the average loading just referred to, and this is calculated for the entire system would result in an additional number of large cars in operation of about 14%.

In order to ascertain whether our recommended standard limit of rush-hour car loading would be unreasonable or impracticable in Philadelphia, we have calculated in detail for each line the car service which would have been necessary to provide for the rush-hour traffic of an average day of October, 1919, represented by Wednesday, October 5th. We have assumed that additional small single-track and maximum-traction cars would be used to furnish the increase of service lines on which these types are now operated, which would mean that practically all of the best of this class of car equipment now on hand would be used. The additional cars necessary to provide the recommended service are assumed to be motor cars having the same maximum capacity of 76 as the present Pay-Within car.

With the use of these types and of the present large double-track cars, there would be required to provide the recommended service, a total of 2,265 cars in operation, rendering necessary the purchase of 489 cars. This total number of 2,265 cars required for recommended service, compares with 1,672 called for by the Company's winter schedule, an increase of 593 cars, or 35%. Compared with the Company's summer schedule, which calls for 1,782 cars, it represents an increase of 483, or 27%. This increase would differ for each line, in some cases being more and in some less than the average. The increase of cars on lines operating into the delivery district is from 1,315 cars of present winter schedule to 1,801 cars, or 37%, thus necessitating some arrangement of routing for certain of these lines.

If, 2,265 cars are operated at the rush hours, there would be 89% more cars in service than in the middle of the day on the base schedule in force last October. This is within the limits of American practice.

We estimate that this service for both morning and evening rush hours would result in additional car mileage of 11%, or an increase of approximately 9% in operating expenses. We believe that more efficient scheduling during the non-rush hours and the use for all day service of the large new cars purchased to replace many of the small single-track cars, together with the saving which might be secured by expense of operation at the rush hours. Thus, while providing far better service to the public, the Company's operations might be placed on a more provident basis and a considerable increase in gross earnings made possible.

RUSH-HOUR SERVICE ON SUBWAY-ELEVATED DIVISION. With regard to the sub-





way-elevated service, we also find, especially during winter operation, a condition of over-crowding. We would recommend that additional service be provided on the basis outlined for surface cars. To accommodate the traffic on October 5th, 1910, in accordance with this standard, 120 cars would have been required. On this division, 10% of the cars in operation are needed as a "shop" reserve, or as of that date, 12 cars were required in addition to the 120 cars now owned.

FUTURE CAR SERVICE. The number of additional cars stated above to be required for both surface and subway-elevated operations should be considered as examples of the rules recommended, not as present requirements. They were the number necessary in October, 1910. The traffic is continually increasing and with the broader plans which have been proposed, the rate of increase would be more rapid in the future. The car equipment calculated to have been necessary for last October, with the additional power equipment, would require probably a year to purchase and install, and by that time, still more cars and power will be needed. Consequently these standards of car loading and car service should be adopted in principle, and should be applied by a bureau or department to be established by the Company. Based on the periodical determinations of this department, the Company should estimate and provide for its car and power requirements from one to two years in advance.

#### CAR EQUIPMENT.

PRESENT TYPE OF CARS. The other principal criticism to which we have referred, concerns the inferior character of the car equipment. Of the 3,292 cars owned by the Company about two-thirds are of the small, single-track type purchased at the time of the original electrification, and of the large double-track cars, 272 were constructed from the small cars by splicing in a short section without modernizing this equipment; consequently about 70% of the total cars are of a type generally unsuited to present conditions of congested traffic. Of the remaining 772 large double-track cars, about 90% have been rebuilt and changed from cross-seat cars into the present longitudinal-seat Pay-Within type. This conversion, largely on account of the change to longitudinal seats of poor design, has rendered this car uncomfortable and unpopular, especially for summer operation.

Of the total surface equipment in Philadelphia, 36% are large double-track cars, in New York 75%, in Brooklyn 89% and in Chicago about 75%. While the single-track car has its use on lines of light regular traffic, it is generally unsuitable for operation during the rush hours in the congested delivery district of large cities, and on many lines it is uneconomical to operate. It is assumed that the Company will desire gradually to replace a considerable portion of these single-track cars by purchase of large cars. We do not make any definite recommendations upon this point, as it concerns principally the operating economy.

COMPARATIVE CAR PURCHASES. Reasonable service during the rush-hours, as of last October, the addition of 489 large cars. With the purchase of these cars, the proportion of large double-track cars owned by total closed and semi-convertible cars would be about 63% or more nearly the proportion in other cities.





In this connection it is of interest to note that during the past ten years in Philadelphia the system purchased 655 large double-truck cars, while the two large surface systems on New York City purchased 1,472 cars, Brooklyn system 1, 127 cars and the Chicago systems about 2,200 cars. These figures do not include the large amount of subway and elevated equipment purchased in the other cities, nor does the figure for the Philadelphia Company include its 120 subway-elevated cars.

We have made a detailed examination of the principal types of the present Philadelphia cars, especially as to points affecting the public comfort and convenience. We have made similar examinations of the standard cars of the four other large cities, all of which are fully described in the detailed report.

THE PHILADELPHIA PAY-WITHIN CAR. Regarding the principal points of design of the Philadelphia standard car our conclusions and recommendations are as follows:

The principal criticism of this car is the replacement of cross seats by longitudinal seats. This was occasioned by the retention of the small platforms, which with the adoption of the prepayment plan compelled the exit of passengers from the front platform only, requiring a wider aisle than was practicable with the double row of cross seats. The sliding platform doors necessitate door pockets which interfere materially with the comfort of passengers on the corner seats and narrow the car entrance. It is not believed, however, that this difficulty can be much improved without practically rebuilding the ends of the car and the platforms. Eight cross seats should be restored in this car, either half on each side or all on one side. The cars already altered by the Company, on the former plan, are understood to operate satisfactorily. With car loads limited as recommended the passageway is ample. The remaining longitudinal seats should be remodeled by using a more comfortable, higher back of spring rattan and by proper sloping of seats and backs.

The sliding platform doors operated by air should be provided with a simple positive mechanical release so that they can be opened by passengers in case of emergency. This device should be under the proper restriction of motorman or conductor.

These cars are also insufficiently provided with steady-ing devices, which causes an unusual number of accidents by passengers falling on cars. Suitable grab-handles on the backs of the proposed seats, and grab-handles horizontal rails or stanchions on platform should be provided, to reduce this risk.

The number and capacity of the electric heaters on this car should be doubled in order to secure the heating effect of the small single-truck Philadelphia car, and the usual heating effect of standard cars of other cities.

The present number of lights should be doubled in order to provide the amount of lighting usual in modern standard cars of this size.

Both the line and destination signs are of poor design





and insufficiently illuminated. Transparent line signs should be used on the front, rear and sides of the monitor and illumined from the car. A destination sign should be placed in the center of the front and rear vestibules directly under the hood, independently illuminated.

This car should be provided with the usual mechanical sander so that the motorman can drop sand on the track when necessary for an emergency stop.

The present projecting fenders should be used only on high speed lines in the suburban districts and when thus used should be properly maintained. Automatic wheel guards should be installed for city service in place of the projecting fender. These are placed under the carplatform in front of the wheels and operate automatically when the trip strikes on obstruction. They have been found to be of value in the reduction of fatal accidents, where used in other cities. Persons struck constitute a large class of fatal accidents occurring in Phila. With the use of these wheel guards it is advisable to change the design of the draw-head so that it will not project beyond the bumper.

OTHER SURFACE CARS. As a large proportion of the other types of surface cars will, it is assumed, be discarded within a few years, it is believed not to be desirable to reconstruct them except for the requirements of safety. We would recommend that all surface cars be equipped with mechanical sanders, automatic wheel guards and non-projecting draw-heads, and that projecting fenders be used only on high-speed lines in the suburbs.

All cars not painted within the last year should be put through the paint shop, and thereafter painted and varnished on a definite schedule.

We recommend that the system and the nomenclature of line and destination signs be entirely rearranged and standardized.

SUBWAY-ELEVATED CARS. The present subway-elevated cars are of good design and no changes are recommended.

NEW STANDARD SURFACE CARS. It is assumed that the new standard car for Philadelphia will be a two-motor, prepayment car with windows capable of large opening, which would make it suitable for both summer and winter operation. If the body is 28 feet long with platforms 5'6" long (inside), mounted on reversed, center-bearing, maximum-traction trucks, the overhang of car without projecting fender when operated on the standard track curve at 50 foot street intersections would be approximately the same as the bumper on the present day Pay-Within car, and about 18 inches less than the overhang of the fender on the present car. Consequently the length of body might be 30 feet if found desirable, or even longer if operated on some lines. For the purpose of this report we have assumed the use of a 28 foot cross-seat car as generally practicable, with seating and standing capacity of 76 passengers on the basis recommended.

This, with a car 8'4" wide with skeleton sides and 34 inch seats, would permit of an aisle 28 inches wide. With exist from





both rear and front platforms, and with the recommended limit of car load, this width of aisle should be found practicable from an operating standpoint.

Our recommendations upon the points of design especially affecting the traveling public, are as follows:

The illuminated line and designation signs should be of the same type as recommended for the Pay-Within car.

The height of the step should be from 14 to 15 inches and the width of step at least 11 inches. The step should be folding or protected and should have safety tread.

The folding platform doors should be mechanically operated by motorman or conductor and should be kept closed while the car is in motion. The bulkheads should be open and all passageways should be at least 23 inches in the clear. The conductor should be located on the rear platform behind a suitable rail or steadying device.

The seats and backs should be of spring rattan, of comfortable height and properly sloped.

The vestibule windows should be given full opening. Monitors should be fixed shut and there should be provided sufficient roof or monitor automatic ventilators.

There should be installed 16 electric heaters of a total rated capacity of 12 amperes.

Twenty 16 candle power incandescent lamps should be used; 15 inside the car arranged in single sockets on the ceiling and lower decks, 1 on each platform, 2 for designation signs and 1 for headlight.

There should be a passenger's push button signal on each side post of car with electric bell or buzzer on platforms.

Mechanical sanders and automatic wheel guards should be installed. Draw-heads should not project beyond bumpers.

ESTIMATED COST OF ADDITIONAL EQUIPMENT. The addition of 489 cars, if all motor cars of the above standard would involve an expenditure for car equipment and equivalent additional capacity of power house and feeder system, car houses and shops which we estimate at approximately \$7,126,000. The recommended changes in present Pay-Within and other surface car equipment are estimated to cost not more than \$500,000. Twelve additional cars for the subway-elevated line would cost about \$144,000. These recommendations, therefore, involve a total expenditure to secure the recommended car capacity needed in October, 1910, of approximately \$7,770,000, and are exclusive of betterments and extensions of track and line. With a normal rate of growth we estimate that at least 100 additional cars per year, with power and storage capacity, will be needed to provide for additional traffic.





## REROUTING PLAN.

"We find that the present routing of cars in Phila., is poorly arranged both from stand points of public convenience and economical operation. The delivery district trackage is not accessible to lines from all sections of the city. Lines through the residence districts are not spaced uniformly, and many times were located originally under competitive conditions on narrow streets, with numerous curves and frequently crossing each other."

ROUTING. Beginning with omnibus lines and developing by the use of tracks and of various methods of traction to the electric trolley system, universal cheap transportation has become the most important factor in the growth of cities and in the every day life of their inhabitants. In large American cities each person rides on an average of three hundred times a year, and a large proportion of the population rides twice a day. The choice of residence, range of employment and method of enjoyment are largely dependent upon the means of getting from one point to another. This enormous modern growth of cities would not have been possible without these improvements in transportation. Their prosperity and further development depend largely upon the facility of street transportation. A community is handicapped if its streets are too narrow for its traffic, or if the vehicle miles or the total miles travelled by its inhabitants each day are not reduced to a minimum by direct and diagonal thoroughfares. With a given street plan and widths utilized to the best advantage by correct proportion of driveways and sidewalks, and by proper traffic regulations and kind of paving, the most efficient method of street transportation is a matter of great public concern.

The street railway routing problem is to provide rapid direct lines between points of travel, arranging to furnish facilities for the entire city, systematically, uniformly, consistently and impartially. If the street railway system could have been originally planned for each duty as a whole with these principles in view, the layout of tracks and the routing of cars would be radically different from the present. Enormous waste of competitive effort would have been prevented, irregular and uneconomical development of the building plan would have been avoided, and the public and the corporation would not to-day be confronted with a legacy of superfluous trackage and delivery district congestion. Early consolidations in some cases resulted in great improvements, but a large proportion of American street railways are carrying some parts of these burdens today. It is not possible now to adopt a perfect routing design, but there is no system which would not derive benefit from the development of a carefully studied plan, as the basis for changes to be made whenever practicable.

The situation in Philadelphia is:

That those who made the original street plans, not knowing very much of the art of city planning, did not design for 1,500,000 population, or for the amount of traffic or methods of transportation which the streets would be called upon to accommodate.

That subsequent additions to the city, sufficient attention has never been given to the question of intercommunication.





That the original street railway systems were built up under competitive conditions with little consideration toward providing an adequate, comprehensive or economical service for the city as a whole.

That since corporate consolidation of the car lines, little has been done to correct the original defects."

**PRESENT STREET PLAN.** Physically, the spread of the city has been limited to but a small extent so that there are few main arteries of travel as there are, for example, Manhattan Island. The city is settled thickly and uniformly to the north, west and south. The grades are light, and there have been practically no natural obstructions to development, the Schuylkill River having been readily bridged. That part of the city west of the Schuylkill River is well provided with moderately wide diagonal avenues. Between the rivers, however, there is no relief from narrow streets and right-angled intersections with the exception of Frankford and Kensington Aves., in the Northeast, Ridge Avenue in the Northwest, Passyunk Avenue in the South, Broad Street North and South and Market Street East and West. Of these thoroughfares, those in the Northeast are useful, but do not approach the heart of the city. Ridge Avenue although narrow, is a striking example of the benefit of diagonal streets. From 32d and Dauphin Streets to 8th and Arch Streets by way of Ridge Avenue, is 3.14 miles or 26 minutes by car; while by rectangular street distance the route is 4.55 miles and the time 31 minutes. Passyunk Avenue in the south, is too narrow for double track and does not lead to the present business center.

So long as it is not deemed desirable to use Broad Street for surface car lines, all north and south traffic must divide between narrow parallel streets among which there is little choice except that some are obstructed by parks and some have greater congestion of vehicle traffic.

**TRAFFIC OF THE DELIVERY DISTRICT.** The main delivery district, including centres for shopping, wholesale business, offices, hotels, railroad and ferry terminals and amusements, is included in the rectangle from the Delaware River to 17th Street and from Locust to Cherry Streets, being about one and one-half miles north and south. Out of an average of 678,000 revenue passengers per day in each direction, 320,000 travel into and out of this district, and about 118,000 of these go out of it during the three-hour period from 4 to 7 P.M. This district is traversed east and west by four streets, two of which are suitable for street railway double tracks, and two for single track and by fourteen streets north and south (exclusive of Broad Street), each accommodating a single track. At three cars per minute on Arch Street and on Market Street, and two per minute on Chestnut and Walnut Streets, the three double lines of track on the east and west streets would accommodate 430 cars per hour in each direction. At two cars per minute the north and south streets would accommodate 840 cars per hour in each direction. If all cars use the limiting section of the street upon which they run through the delivery district, the maximum number which could be operated per hour into and out of the delivery district would be 2,160 cars, which, if large cars, would seat approximately 82,000 people. Allowing four square feet of standing space per standing passenger and figuring the average load for the heaviest half-hour at 80% of the allowable maximum, these





cars would accommodate about 132,000 passengers per hour. The present maximum movement is about 62,000 per hour. Thus it appears that although this traffic is not equally distributed throughout the district, or throughout the hour, there is opportunity for expansion of rush-hour delivery district traffic and service.

Plans should be prepared, however, for utilizing the streets in this district to their greatest possible efficiency. To this end careful consideration should be given to operating efficiency, larger cars, use of trailers and to re-routing.

ROUTING IN THE DELIVERY DISTRICT. The principal consideration in the design of routes in a main delivery district, is that every section of the city shall have equal facilities for reaching any part of the district without transfer. As approximately one person from every residence travels into the delivery district practically every week-day in the year, one should be able to reach any part of it without a long walk. This is not the case in Philadelphia today. Chestnut and Walnut Streets are used almost exclusively for lines to the southern part of West Philadelphia, and for a strip of the city north and south between 17th and 20th Streets. Market Street is used exclusively for lines to the northern part of West Philadelphia with one line to the north-central part of the city. Arch Street offers a greater choice of sections, but is used principally by lines to the northern part of West Philadelphia and to the Northwest. The north and south streets are used for direct north and south travel excepting that the northwestern section is well provided with "L" shaped lines which enter or cross the delivery district at various points. Several L lines also run to the Northeast without system however as to provision of territory or of providing choice of delivery.

The principal traffic centers in the delivery district are around the City Hall, Eighth and Market Streets, the Delaware River ferries, the wholesale district in the eastern portion and the financial district around Fourth and Chestnut Streets. Manifestly, the best delivery for any line, is lengthwise of the district, or east and west, in order to reach as many important points as possible. The track capacity in this direction, however, being limited to three pairs of tracks, it is possible to give each of the smaller sub-divisions of the city only one line on each of these east and west streets supplemented by one or more lines running north and south across the district near the important points.

The greatest use of the east and west streets can be obtained by "Z" shaped through lines, the arms of which would run north and south with the connecting link occupying several blocks on an east and west delivery street. This would double the capacity of the delivery tracks as compared with their use by L lines or east and west lines terminating at the Delaware River. An ideal system would comprise several such lines on each east and west street so spaced that a prospective passenger on any street could take a car for any large section of the city. If three Z lines are located on each pair of east and west delivery tracks, they would cover practically all the north and south streets, and therefore could be spread over a wide territory.

The operation of the present north and south lines





through the delivery district should be retained, but long lines which run to the north suburbs should be turned back at Locust Street. The connection of a long suburban with a short city line furnishes unsatisfactory service and schedules to both classes of patrons. Suburban lines are often equipped with large, high speed cars and should not be brought over long slow routes in the delivery district.

**NORTH AND SOUTH ROUTES.** The location of the original street railway lines under competitive conditions has resulted in an irregular arrangement of lines on the north and south streets. Cars run south on both Sixth and Seventh Streets, north on both Eighth and Ninth Streets, and north on both Eighteenth and Nineteenth Streets above Market. In the interest of uniformity of operation, and to make walking distances equal to reach the same delivery point this arrangement should be standardized so that lines would run in opposite directions on alternate streets. At the same time, north and south lines which straddle the territory between 4th and 8th Street lines, passengers have a long walk one way to any delivery point, with the alternative of a ride around three sides of the lines which turn at Pine Street. The present 13th and 15th Street line is satisfactory, as there are no tracks on Broad Street, but the traffic on 12th and 16th Streets is so much out of balance that if enough cars are run on one street, there are too many on the other.

**ROUTES IN RESIDENCE DISTRICTS.** Outside the delivery district there is hardly a section where there are not competitive parallel or interlacing lines. Often one of the competitive lines is located in narrow streets with frequent curves, this location having been necessary in order to invade the territory occupied by the original line.

**UNPROFITABLE LINES.** While street railways should keep abreast of the building up of city areas, there are several lines in Philadelphia which are not likely to be profitable for a number of years. Estimating the passenger miles per year on the basis of the September passenger count, the operating expenses for the fiscal year 1910 averaged one cent per passenger per mile. The receipt per revenue passenger being 4.88¢, it will be seen that the Company lost money in operating expenses alone on all passengers hauled over 4.85 miles, without considering taxes, depreciation and interest on the investment. This statement, however, as to each individual line should be qualified by the factor of density of travel as shown by the average number of passengers on each car of the line.

**NECESSARY NEW TRACK.** There are some recently built-up localities, however, principally in West and South Philadelphia, where track additions are needed, as described under suggested routes.

**GENERAL PRINCIPLES OF REROUTING.** No matter how illegal or inconvenient a street car route may be as a whole, it is bound to suit the convenience of a certain number of people, so that however small a number this may be, and change will be opposed. After a term of years, a distinct traffic grows up along each line, and therefore, old established routes should





not be changed without excellent reasons. Wherever changes are desirable, they should be made only if a large majority of patrons affected will have better facilities than they now enjoy.

In consideration of the subject of routing, no attention has been paid to charter, lease or franchise limitations. It is assumed that the betterment of street car service for the people of Philadelphia will not be permitted to be restricted permanently by conditions of this nature.

The principal factors governing the location of alteration of street car routes are as follows:

1. History of present lines.
2. Division of territory served, as between lines.
3. Delivery.
4. Directness -
  - (a) Distance,
  - (b) Curvature.
5. Transfers required.
6. Cost of ride.
7. Balancing of ends and sides of double-end and parallel street lines.
  - (a) Volume of traffic.
  - (b) Character of traffic.
  - (c) Time of rush-hour peaks.

#### HISTORY OF PRESENT LINES. A brief tabulated history of the present operated lines

has been prepared to show what changes and additions have been made since the various traction consolidations and since electrical equipment. The present lines are grouped according to the traction company operating at the time of electrification. It will be noted that the Philadelphia Traction Company acquired 28 of the present lines and established 2. The Electric Traction Company acquired 12 lines and established 3. The People's Traction Company acquired 9 and established none. The Hestonville, Mantua & Fairmount Passenger Railway Company established 4 of the present lines and the Union Traction Company, which was the original general consolidation operating from 1895 to 1902, established 10 lines. The Philadelphia Rapid Transit Company, which has operated since 1902, has established 13 lines and acquired 7 suburban lines. The Philadelphia Rapid Transit Company also built and placed in operation the subway-elevated system on Market Street.

It will, therefore, be seen that of the present 89 lines, 53 were established by the horse car companies, and 31 have been established since the original consolidation of the traction companies in 1895, principally in new territory.

IMPORTANT CHANGES OF ROUTES. Few important changes in route have been made in the original lines, although most of them have been extended.

DIVISION OF TERRITORY. Territory of a homogeneous residential character should be provided with street railway lines and service approximately according to





its density of population. Lines to the same objectives should be spaced as uniformly as possible and should not interlace. Lines running in the direction of heaviest travel should be closer together than crosstown lines as the average walk should be shortened as much as possible for the greater number of passengers. In a series of L shaped lines those adjacent on one leg of the L should be spread as much as possible on the other. Crosstown lines are generally required at intervals to supplement the partial crosstown service furnished by "L" lines, and it is generally possible to route crosstown lines to secondary traffic or delivery districts. In residence districts, it is better to have few lines with frequent service than to have numerous lines with long headways; for although the average walk may be somewhat longer, the total time for the journey will be less.

**DELIVERY.** As so large a proportion of the travel is to and from points in the main business or delivery district, it is important that all sections of the city should have good and as nearly as possible equal franchises for reaching all parts of this district without transfer. Long lines or interurbans need only touch the district but short lines should have the best delivery routes to attract the short distance riders. Secondary delivery districts occur at retail centers outside the main shopping district, at large industrial works, schools, groups of factories, important railroad stations and parks. Such districts generally require some radiating lines and interconnection. In the case of parks and amusement resorts, it is sometimes better to provide special routes to be operated during the summer season, than to operate fixed lines from morning to night every day in the year.

**DIRECTNESS.** After the objectives are determined upon, the main requisite of a route is that it shall be direct. The more direct the route the shorter the time required for the journey, which should mean an advantage both to the passenger and the Company. If the one and one-quarter million daily street car rides in Philadelphia could each be shortened by one minute, the cash saving at 15 cents per hour would amount to nearly \$1,000,000 per year. The saving of ten minutes per day, five minutes in each direction, would be equivalent to a gain to the traveller of six working days in one year. To this end, the route between objectives should be the shortest practicable, and the curvature should be reduced to a minimum. Doubling back of a line on itself should be avoided. In this connection, it should be remembered that the rate of speed in the delivery district is much slower than the average, so that the best delivery is often at the expense of speed.

**TRANSFERS.** In general a passenger should be able to travel from any part of the city to any other, without change of cars. It is not entirely practicable, however, to provide for this, and a passenger from one district of the city to another outside of the main delivery district can often reach his destination more quickly by the use of a transfer. Transferring is objectionable to the passenger, as it requires changing cars and waiting for connections. It is also objectionable to the company on account of the increase in number of rides to unprofitable lengths and the difficulty of restraining abuses. Therefore, it is desirable to provide routes which avoid as far as possible necessity of transfer. Too much attention to this consideration however, may result in unnecessary duplication of car mileage. In order to avoid congestion of traffic and car service, and the abuse of privileges,





transfers should be avoided in the delivery district.

DOUBLE END LINES. By connecting lines which run into the delivery district from opposite sides, the patrons on each end are afforded a greater range of rides without transfer, duplication of car mileage in the delivery district is avoided, and the capacity of the delivery district trackage increased. Such connections are, therefore, desirable from all points of view. The ends of the line should be balanced as to length, volume of traffic, character of traffic and time of peak loads. If the volume of the traffic on each end is not the same at each hour, the service will be unequal. If the character of traffic is not the same, travel between the districts connected will be discouraged. On each leg of the line occupying parallel streets the traffic should balance in volume and character. An example of this in Philadelphia is the large difference in volume of traffic on 12th and 16th Streets.

GENERAL REROUTING PLAN. It is desirable that a definite plan of rerouting as nearly perfect as practicable be worked out for Philadelphia and agreed upon by all parties interested, and that upon such a plan all future extensions and alterations should be based. It is not necessary that the entire plan should be put into effect at once. As an approach to the subject and as an example of what might be done, a tentative routing system or study has been prepared in connection with this report. This plan embodies in general the principles which have been discussed and is based to a considerable extent upon the information obtained for this report by passenger counts and assortment of transfers and exchanges. The subject, however, is so large and of such vital importance to all, that careful study and consideration should be given by all interests involved, and a final plan prepared, agreed to and carried out.

NEW TRACK REQUIRED AND PRESENT TRACK ABANDONED. The suggested routing system would require the construction of about 33 miles of new track, and would permit the abandonment of about 27 miles of existing track, making a net addition of about 6 miles, single track measurement. Of the new track about 9 miles is in extension of existing track, 5 miles being in South Philadelphia. If the suggested plan is adopted, the changes in most cases could preferably be made when the existing track wears out.

As fewer transfers and exchanges would be required with the suggested routes, a rearrangement of the transfer and exchange system would become necessary.

RAPID TRANSIT. That Philadelphia, the third city in size in the United States, has maintained its rate of growth, without a distinct rapid transit system, is due to the large self-centered manufacturing districts and the favorable arrangement of the steam railroad lines. These lines spread through the entire northern and western portions of the city with frequent stations, and terminate at the very heart of the delivery district. There are certain important areas and lines of travel, however, not served by railroad passenger lines. The steam railroads cannot gather travel by crosstown branches, and their terminal facilities are already overtaxed. From the standpoint of the general public, the steam railroad service does not provide frequent and uniform headways between trains, and does not afford general inter-district commun-



ication.

The present subway-elevated system serves one of the large districts not served by steam railroad lines. Other similar districts where the need appears to be equally as great are in the northwest along Ridge Avenue; in the northeast and to some extent in South Philadelphia. If a general system is designed, however, the fact must not be overlooked that such means of transit and the increasing height of buildings will tend to congest the narrow streets in the delivery district to a point where the streets themselves will become the impeding factor in city development. The layout of a high-speed passenger system which will best accommodate the traffic, and which will be commercially practicable is a complicated problem, and should be made only after the fullest investigation and study.

#### REPORT HOW UTILIZED.

The Pennsylvania State Railroad Commission did not issue a decree or order to the Philadelphia Rapid Transit Company. The report of Ford, Bacon & Davis with its recommendations was handed over to the said Transit Company for its consideration. It was tactically understood that the company would either elect to make necessary changes and improvements in substantial conformity to the said report and recommendations, or be subject to some form of compulsion.

However, that may have been, the Philadelphia Rapid Transit Company did provide more cars, rerouted lines, and changed schedules and otherwise improved its service. Furthermore, the city at once acted upon the idea of investigating the problem of rapid transit for the entire City of Philadelphia.





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## ACTION BY THE CITY OF PHILADELPHIA

### Appointment of Transit Commissioner -

Honorable Rudolph Blankenburg, Mayor of the City of Philadelphia, by authority conferred in him, on May 27th, 1912, appointed A. Merritt Taylor, Transit Commissioner, to investigate the problems of improved transit facilities for Philadelphia, with a view of determining advisable means for obtaining rapid, efficient and cheap transit throughout the city and its suburbs, by the use of subways or other approved modern methods, to consider fully the question of public and private ownership and the financial and economic aspects of the problem, to prepare a report covering the investigations and to recommend ways and means whereby efficient and rapid transit commensurate with the present and future needs of the entire city and its suburbs may be secured.

### Legislation Pending Final Report -

At the beginning of the transit inquiry by Mr. Taylor it was found that the city of Philadelphia was devoid of legal authority to construct or own transit facilities and also that the city lacked the necessary financial resources under the then existing legislation. Consequently, the legislation necessary to enable the city to establish and, where advisable, to finance and construct satisfactory transit facilities was outlined and submitted to and passed upon by eminent counsel appointed by the Mayor, who then drafted the necessary bills for presentation to the Legislature. All of them have been enacted and signed by the Governor.

### A brief outline of these acts follows:

1. An Act approved by the Governor June 17, 1913. It empowers cities of the first class to purchase, lease, locate, construct and equip or otherwise acquire transit facilities, and to own, maintain, use and operate the same within their corporate limits and within the limits of adjacent cities, boroughs and townships, and to exercise the right of eminent domain in connection therewith, and prescribes the manner of ascertaining the damages sustained in connection with such exercise; to sell, pledge or lease transit facilities, to grant licenses for the use of same, to enter into agreements for construction and operation of the same, to connect the tracks of railways with the tracks of railroads or railway companies, and, under certain conditions, to use portions of the tracks of the latter, and empowers railroad, railway and motor power companies to sell, purchase and lease transit facilities to and from said cities and to contract with said cities respecting the acquisition, construction, operation and use of transit facilities.

11. A supplement to an Act entitled "An Act to Provide for the Better Government of Cities of the First Class in this Commonwealth" approved June 1st, 1885, which supplement was approved by the Governor May 9th, 1913. It creates a Department of City Transit to have charge, control and management of the transit facilities of





cities of the first class.

**III. An Act approved by the Governor June 17, 1913.**

It provides revenue for state and county purposes in cities co-extensive with counties for city and county purposes, imposes taxes upon certain classes of personal property and provides for the assessment and collection of the same. Provides for the duties and compensations of prothonotaries and recorders in connection therewith, and modifies existing legislation which provided for raising the revenue for state purposes. This act makes personal property taxable for city and county purposes instead of for state purposes as heretofore, and, in the opinion of counsel, thereby brings personal property within the constitutional classification of taxable property which forms the basis of the borrowing capacity of the city. The constitution permits the city to borrow up to 7% of the assessed value of taxable property. The assessed value of taxable personal property in Philadelphia is upwards of \$660,000,000, and therefore, the borrowing capacity of the city is increased to the extent of 7% of that amount, or upwards of \$46,200,000.

Prior to the passage of this Act the city collected the four mill state tax on personal property, amounting to upwards of \$2,640,000, of which three-fourths was returned by the State to the City. This Act provides that the whole amount shall be collected and retained by the City and county. Therefore, the revenue of the city is increased by this act to the extent of \$660,000. per annum, which becomes available to aid in the establishment of transit facilities.

Thus it may be seen that the State paid for the original investigation and recommendation as to improved transit facilities in Philadelphia and later contributed towards carrying out this project the sum of \$660,000. per annum.

**IV. An Act approved by the Governor July 21, 1913.**

It regulates the appropriation and use of money realized by cities of the first class, from the sale of certain bonds, by making it unlawful for cities of the first class to use or appropriate any such moneys realized from the sale of any bonds issued by such cities, based on the assessed valuation of personal property for either city or county purposes, for any other purpose than the establishing, purchasing, leasing, locating, constructing, equipping and improving transit facilities or any one or more of them, and the use and operation of the same within their respective corporate limits and within the limits of adjacent cities, boroughs or townships, or for other permanent improvements.

**V. An Act approved by the Governor July 23rd, 1913,**

makes it lawful for appropriations to be made and for contracts to be entered into and work and materials to be done and furnished under such contracts when funds for the purposes therefor shall have been or have been authorized to be borrowed by cities of the first class without awaiting the issue of such loans or the receipt of the money to be so borrowed. Heretofore the City has been required by law to have the whole amount of cash on hand to meet the requirements of any construction contract prior to the execution thereof, with the resultant heavy interest and sinking fund charges accruing on bonds issued before the money is needed for





payments due by terms of such contract. The saving and interest charges during the construction of municipally owned transit facilities herein recommended for immediate construction made possible by this act, will amount to approximately \$1,800,000.

VI. A joint resolution proposing an amendment to Section 8, of Article IX of the Constitution of Pennsylvania, was adopted by the Legislature of 1913, and for the second time at the session of 1915, and will be submitted to the electorate at the November election. It provides that the City of Philadelphia, upon the conditions therein set forth, may:

1st. Increase its indebtedness to the extent of 5% in excess of 7% upon the assessed valuation of the taxable property therein for the specific purpose of providing for the construction and improvement of subways, tunnels, railways, elevated railways and other transit facilities, for the construction and improvement of wharves and docks and for the reclamation of land to be used in the construction of wharves and docks owned or to be owned by said city.

2nd. In ascertaining the borrowing capacity of the said city at any time there shall be excluded from the calculation a credit where the work resulting from any previous expenditure for any one or more of the specific purposes hereinbefore enumerated shall be yielding to the said city an annual current net revenue, the amount of which credit shall be ascertained by capitalizing the annual net revenue during the year immediately preceding the time of such ascertainment. Such capitalization shall be accomplished by ascertaining the principal amount which would yield such annual current net revenue at the average rate of interest and sinking fund charges payable upon the indebtedness incurred by said city for such purposes up to the times of such ascertainment. The method of determining such amount to be excluded or allowed by such credit may be prescribed by the General Assembly.

3rd. The incurring indebtedness for any one or more of such purposes of construction, improvement or reclamation, the city of Phila. may issue its obligations maturing not later than 50 years from the date thereof, with provision for a sinking fund sufficient to retire such obligations at maturity.

This provision, if adopted, will reduce the annual sinking fund payments required to be made on city bonds issued after the adoption thereof from 2-1/2% per annum to 1% per annum.

4th. The payment of such sinking fund to be in equal or graded annual installments.



This provision, if adopted, will permit the city to establish a graded sinking fund for the extinguishment of bonds issued after its adoption. Thus, the sinking fund payments may be arranged so that during the first year of operation the amount will be nominal, such annual payments increasing thereafter on a graded scale, calculated on such basis as to provide an amount sufficient to retire such obligations at maturity.

5th. Such obligations may be in an amount sufficient to provide for and may include the amount of interest and sinking fund charges accruing and which may accrue thereon, throughout the period of construction and until the expiration of one year after the completion of the work, for which said indebtedness shall have been incurred, and the said city shall not be required to levy a tax to pay said interest and sinking fund charges as required by section 10, of Article IX of the Constitution of Penna. until the expiration of said period of one year after the completion of said work.

The provisions of this proposed constitutional amendment will remove restrictions which unduly hamper the city in the development of transit and port facilities, and which impose an undue burden upon the taxpayers.





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REPORT OF THE TRANSIT COMMISSIONER.

The report of the Transit Commissioner was submitted on July 24th, 1913.

This report outlined in detail a most comprehensive system of subways and elevated railways with connecting branches designed to give a most perfect system of transportation for the entire people of the city of Philadelphia.

The project contemplated the building of the subways and elevated structures by the city and the leasing of such facilities to the Philadelphia Traction Company who would equip and operate said facilities; or as a finality of such arrangement were not possible, then for the city to either perfect a lease to some independent operating company to be formed for the purpose or the city might equip and operate the system itself.

Following is given the Transit Commissioner's report and general recommendations.

General.

Philadelphia's Development Will be Advanced  
by Adequate Rapid Transit Facilities.

The future prospects of the City are largely dependent upon the development of adequate rapid transit facilities. People who enter the city, and the residents of every populous section of the city and its suburbs, need and demand quick, cheap and convenient access to all points in the shopping and delivery district, to and between all important passenger terminals and to every other populous section of this city and its suburbs. Such facilities are designed with a view to extensions being made thereto from time to time in such a way as to properly meet and stimulate increasing traffic and the growth of the city. The study taken in the entire district within a radius of 16 miles of the City Hall, both in Pennsylvania and New Jersey, which is designated as Metropolitan Philadelphia.

Adequate Rapid Transit Facilities are Essential to All.

Today the wage earner who has established his home near his place of employment, who becomes unemployed, has to seek other employment in the restricted district easily accessible to his home. If he fails to secure employment in the restricted district which is accessible to his home, he is forced to remain idle or to break up his home and move to some other section of the city where he can obtain work. Adequate rapid transit facilities will enable every wage-earner of Philadelphia to establish a permanent home where real estate values and rentals are moderate from which he and the members of his family can reach every important place of employment in the city quickly, cheaply and comfortably, so that he and any members of his family may be able to accept employment in any other section of the city without breaking up their established home.





Employers in Philadelphia will be Able to  
Draw on the Population of the Entire City  
for Help.

Adequate rapid transit facilities will bring all wage earners of the City of Philadelphia within easy access of every factory and important place of employment therein, with the resultant advantage to employee and employer.

Growing and Prosperous Neighboring Cities and  
towns Must be Tied in to Philadelphia by Ade-  
quate Rapid Transit Facilities.

Philadelphia, to remain a great commercial center and to become a greater one, must enable people of neighboring communities to reach here and do business here more easily and to better advantage than by building up their own independent business centers, which they will be forced to do unless Philadelphia takes the matter in hand and gives them easy access to and through her commercial districts.

Relief Must be Afforded Without Delay.

Certain districts are now suffering by reason of their isolation from the active centers of the city in point of time and frequency of service; also, there are lines of travel which are now over-taxed, and the people who use these lines are entitled to relief, which must be afforded without delay or the overcrowding will become intolerable.

In view of the above in conjunction with the facts developed in the report, the following recommendations are made:

#### Recommendations

1. That the following described subway with branches be built at once by the City.

A 2-track subway delivery loop beginning at Broad and Arch Streets, thence eastwardly in Arch Street to Eighth Street, thence southwardly in Eighth Street to Walnut Street, thence westwardly in Walnut Street to Fifteenth Street, thence northwardly in Fifteenth Street to Filbert Street, thence northeastwardly under the Parkway to Broad and Arch Streets.

A 4-track subway beginning at Broad and Arch Streets, extending thence northwardly in Broad Street to Pike Street, there dividing into two elevated lines, one extending eastwardly via McFerran Street to Luzerne Street, thence via Luzerne Street to Ninth Street, thence northwardly in Ninth Street to the Northeast Boulevard, thence along the Northeast Boulevard to Rising Sun Avenue. The other extending northwestwardly from a point above Pike Street by private right-of-way to Sixteenth Street, thence northwardly via Sixteenth Street to Bellfield Avenue, thence northwardly via Bellfield Avenue to Ogontz Avenue, thence northwardly via Ogontz Avenue to Olney Avenue.

A 2-track subway beginning at Broad and Walnut Streets,





extending thence southwardly in Broad Street to Bigler Street, thence, still via Broad Street, an extension laid in depressed open right-of-way to League Island.

2. That an elevated railway to Frankford be built at once by the Philadelphia Rapid Transit Company, beginning at a point of connection with the present Market Street Subway-Elevated tracks at Front and Arch Streets, thence northwardly via Front Street to Kensington Avenue, thence northeastwardly via Kensington Avenue to Frankford Avenue, thence via Frankford Avenue to Bridge Street, in Frankford.

3. That an elevated railway to Darby be built at once by the Philadelphia Rapid Transit Company from a point of connection with the Market Street Subway-Elevated Railway at Thirtieth and Market Streets, thence in a southerly direction via Thirtieth Street and a private right-of-way skirting on and sometimes over the westwardly side of the Phila., Baltimore and Washington Railroad to Paschall Avenue, thence to Gray's Ferry Avenue, thence via Gray's Ferry Avenue to Woodland Avenue, thence still southwardly via Woodland Avenue to City Line, thence still southwardly via Main Street, Darby, and private right-of-way to a point on the Philadelphia and Chester Turnpike near the center of Darby.

All these new lines recommended, together with the existing Market Street Subway-Elevated Line, are shown on the foregoing diagram and also on Map No. 26 in Volume II of the report, with resultant time-saving.

4. That the Department of City Transit proceed forthwith to draft detailed plans and specifications for the construction of the Broad Street Subway and branches as above recommended, in order to avoid delay pending the reconvening of the City Councils this autumn. The Broad Street Subway will be required, whether operated by the Phila. Rapid Transit Company or as a portion of an independent system.

5. That the Broad Street Subway and branches be equipped and operated by the Philadelphia Rapid Transit Company. That the elevated railway lines to Frankford and to Darby be constructed, equipped and operated by the Philadelphia Rapid Transit Company under such conditions as will ultimately vest in the City the ownership of the recommended elevated lines and all equipment furnished by the Philadelphia Rapid Transit Company.

6. That the Department of City Transit proceed forthwith to enter into tentative negotiations in all respects subject to the approval of the City Councils with the Philadelphia Rapid Transit Company with a view of determining for the consideration of Councils upon what basis the Philadelphia Rapid Transit Company will agree to build, equip and operate the elevated lines to Frankford and Darby and also equip and operate the Broad Street Subway.

7. That the Director of the Department of City Transit report to Council on their reconvening in the autumn what progress has then been made in the above mentioned plans and negotiations, in order that City Councils may take such action with relation thereto as they may deem desirable.

No agreement should be entered into between the City





and the Philadelphia Rapid Transit Company with relation to the establishment or operation of the facilities herein recommended for immediate construction by the Philadelphia Rapid Transit Company, unless such agreement provides for and insures the establishment and operation of all of such facilities, for if it becomes necessary to resort to the establishment of an independent system, to be independently operated, all of the traffic originating in the districts penetrated by all of these lines recommended will be required to support it.

8. That the construction of the Broad Street Subway be financed by the sale of City bonds, the issuance of which is made possible by the increased borrowing capacity of the City resulting from the passage of the personal property tax bill, which was approved by the Governor on the 17th day of June, 1913.

The financial results to the City from the plan of transit development herein recommended have been estimated in detail and are shown on Tables A and B on pages 8 and 9. If the money required by the City for transit development be raised by the issue of 30 year bonds, under the existing constitutional requirements, the results will be as shown in Table A. If the proposed constitutional amendment be adopted in November, 1915, the results will be as shown in Table B.

Each of these tables gives for each year an estimate of income and of charges against income, and also a statement of the City's assets and liabilities at the end of each year, resulting from the transit development undertaking as recommended.

The estimated income from operation is the balance remaining from the revenue of all the lines recommended for immediate construction, after paying all operating expenses, taxes, interest at 6% on the entire investment of the operating leases, in way and structures for the Frankford and Darby Lines and in equipment for all lines, and after allowing renewal reserve sufficient to replace the property of the lessee when necessary. The City's sinking fund obviates the necessity of a reserve against depreciation of the City's property.

The proceeds of the one mill tax on personal property, relinquished by the State to the City in aid of transit development, are included in the income. While the personal property assessment will naturally increase year after year and thus enhance the City's income, no estimate of such increase (which will be material) has been made or included.

After paying the interest and setting aside the sinking fund under the present constitutional requirements the surplus income or deficit is shown in Column 15 of Table A. This is carried into Column 3 of the Balance Sheet, which shows the accumulated surplus or deficit at the end of each year. While this accumulated deficit reaches a maximum of \$4,562,500 in 1923, it must be remembered that the city will have been setting aside a sinking fund which has accumulated to the amount of \$5,842,000 in the same year, whereas the setting aside of \$213,500 will be sufficient up to that year for the replacement of property when necessary. The entire direct financial result, however, is shown in Column 8, which represents the difference between the assets and liabilities due to transit development at the end of each year.





While the result given in Column 8, Table A, indicates a net profit in every year, accumulating in 1930 to over \$12,000,000, it should be understood that the sinking fund charges must be set aside each year and that the fund itself cannot be used to pay current deficits. The amount of these deficits would, therefore, have to be met otherwise.

In this connection a column has been added to the tables to show the abnormal increase in tax collections which the City may obtain by reason of the abnormal increase in taxable value produced by transit development. If only one-half of this abnormal increase be secured, the cash deficit will be fully met thereby.

The proposed Constitutional amendment will, if adopted, permit the City to issue 50-year bonds instead of 30-year bonds, and thus will reduce the necessary annual sinking fund accruals from 2 1/2% to 1%. The amendment further will permit the funding of interest and sinking fund charges accruing during construction and one year thereafter. If this amendment be adopted at the general election in 1915, the money necessary for construction after January 1, 1916, can be raised on the new basis. It is assumed that the money required between July 1 and December 31, 1915, may be raised by temporary loan and later funded, so that the expenditures for the year to June 30, 1916, may also be figured on the new basis.

Under this plan the annual sinking fund charges would be smaller, but the interest charges would be greater because of the issue of bonds to fund interest and sinking fund charges accruing during construction and one year thereafter. The entire profit to the City would, therefore, be less by \$1,500,000 than if the project were financed under existing requirements. The surplus account, however, shows a cash balance each year.

In both of these tables Column 1 is the book value of the property built or acquired by the City, based on the cost thereof, including interest charges during the period of construction.

The sinking fund in Column 2, and the surplus or deficit in Column 3, will actually be augmented by compound interest, which has not been calculated. This would increase the profit shown in Column 8, but would be subject to a deduction for compound interest on amounts in Column 6.

The abnormal increase in taxes shown in Columns 16 and 17 are not predicted, but are calculated from the apparently abnormal increase in taxable values which accompanied the construction of the Market Street Subway-Elevated Line. Such portion of this possible increase in revenue as is realized may be regarded as additional profit to the City from the recommended rapid transit development.

Comparison of Table A with Table B demonstrates the need for the adoption of the proposed amendment to the Constitution of the State reducing the annual sinking fund payments accruing on municipal bonds from the present rate of 2 1/2% to 1%, and providing the other advantages enumerated therein. This proposed amendment is printed in full as Appendix B.





It is recommended that the City take part in the transit development to the extent above outlined because the Broad Street Subway Lines will not for some years yield sufficient return to establish the necessary credit basis upon which a private enterprise would be able to raise the required capital on a reasonable basis, if at all. This barrier will be removed by the use of the municipal credit without adding any additional burden to the tax-payers and to the ultimate great profit to the City.

The entire local transportation system must be operated as a unit to best serve the public in affording convenient and economical transportation from each section of the city to each other section of the city. Passengers will walk regularly to rapid transit lines only from a distance of about half a mile. Therefore, a rapid transit line operated independently serves a comparatively restricted area and tends to concentrate the population in that area. It is not feasible to build subway or elevated branches to spread out the sphere of usefulness of the rapid transit facilities to the population which supplies traffic to load the main rapid transit lines. Consequently the functions of gathering and distributing traffic in the residential districts are best performed by intersecting surface lines, which, being comparatively inexpensive in construction, can be extended over a wide area.

Stopping at every street corner, surface lines transferring with rapid transit trunk lines serve as gatherers and distributors of rapid transit passengers in the territory through which they run, better than branch high-speed lines with stations from 4 to 6 blocks apart, on which very frequent headways are not practicable, and which could not be financially supported by the traffic.

The existing surface system occupies most of the streets suitable for tracks in the built-up districts. With some extensions and alterations it is equipped to furnish the transfer feeder service necessary for the proposed rapid transit lines. Further, the existing Market Street Subway-Elevated Line should be a component part of any high-speed system. The present surface lines operated as gatherers and distributors of rapid transit passengers are, therefore, essential to a system which will give adequate service to the greatest number of people and to the broadest area, the rapid transit lines of such a system forming the trunks or main stems and the transfer surface lines constituting the limbs or branches.

The Philadelphia Rapid Transit Company has enjoyed up to this time a practically exclusive franchise in Philadelphia. Every such franchise carries with it an obligation, namely, that its facilities be operated and extended as may be necessary and reasonable to afford adequate and proper service to the public. Continued growth of the city is dependent upon the development of adequate transit facilities, and is essential to the welfare of the Philadelphia Rapid Transit Company. It is expected that the management of that company will enter into the forthcoming negotiations in a fair, broad-minded and progressive spirit.

9. If the negotiations with the Philadelphia Rapid Transit Company do not produce such results as the City Councils can accept as advantageous to the City, the establishment by the City of an independent rapid transit system with certain new surface line feeders





will be necessary and will be made the subject of a supplemental report, the figures for which are already prepared, with recommendations, for the consideration of City Councils.

10. That, where feasible, all streets in outlying districts shown as needed for future rapid transit lines be widened as boulevards to provide the best locations therefor; that all real estate which will be needed by the City in the near future for the development of rapid transit facilities and which is likely to be improved by the construction of expensive structures thereon be secured without delay; that due regard be given to the proper development of transit facilities in future City Planning. That Henry Street be made available for the projected line extending via Parkway, North Twenty-ninth Street and Henry Street to Roxborough. The construction of this line will be required in the near future.

11. That the City should regard its present action as a step toward an ultimately complete rapid transit system, and that in future development of rapid transit facilities due consideration be given to the lines projected on Map No. 45.

12. That every effort be made to secure prompt adjudication of any questions arising as to the sufficiency or legality of legislation enacted, and that every effort be used to secure the final adoption of the proposed amendment to the Constitution which will bring advantages of incalculable value to Philadelphia.



ORGANIZATION OF THE DEPARTMENT OF CITY TRANSIT.

On July 1st, 1913, the Department of City Transit was duly organized and proceeded under authority granted by City Councils to design the facilities in the Transit Commissioner's Report.

The following is a brief sketch of the organization of the department, including various officers as shown in sheet hereto appended:

Mr. George T. Atkinson was appointed assistant director, a position for which he is well adapted by reason of long, varied and successful experience in steam and electric railway operation, management and accounting.

Mr. Henry H. Quimby was appointed chief engineer, his admirable training and experience in engineering design and construction and his work during recent years with the City as engineer in charge of the bridge division of the Bureau of Surveys peculiarly fitting him for the position which he occupies. Mr. Quimby was formerly assistant engineer with the Phoenix Bridge Company and chief engineer of the Phoenix Iron Works.

Mr. John J. Egan was appointed secretary, a position for which he is well qualified by reason of an active business experience including press and reportorial work.

Mr. T. Nelson Spencer was appointed as assistant engineer in the field, Mr. Stephen Harris as inspector of designs, and Mr. Charles H. Stevens as head draftsman, these men having had extensive practical experience along the various lines of work in which they are engaged.

All positions in the Department (except those properly exempted by law) were filled by appointments from civil service eligible lists. The Department in the course of its organization has been greatly benefited by active and efficient co-operation on the part of the Civil Service Commission, the prompt action taken by the Commission in providing proper lists upon short notice having resulted in a remarkable rapid up-building of the present efficient staff for the conduct of the work under way.

The Department has also greatly profited by the aid and advice of Messrs. Ford, Bacon & Davis, retained as consulting engineers under contract authorized by City Councils. This concern has had a broader and more complete engineering training and practice along many of the lines involved than perhaps any other in the country. Their wide experience in the successful analysis of difficult traffic and engineering problems in many of the large cities of the United States has provided them with a vast amount of such information, all of which has been made available to the Department in its work. They retain a large organization of specialists, skilled in every branch of engineering and operating activity and versed in the handling of great traffic and development problems. Messrs. William S. Twining and





James A. Emery, staff officers of the firm, have been constantly engaged in the work for the Department and one of the members of the firm has devoted a large portion of his time to the solution of the various problems submitted for consideration and to the supervision of the engineering work. The Department has also secured the full advantage of the services of the experts and engineers composing the organization of Ford, Bacon & Davis, as an indispensable aid to the City in the treatment of the many and varied technical problems constantly arising in connection with the work.



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ACTION BY CITY COUNCILS DURING 1914 & 1915.

City Councils still further ratified the general plan for rapid transit by including in the \$11,300,000 local bill which was voted on at the general election held in November 1914, and item of \$500,000. for the purpose of reconstructing and relocating certain sewers draining the central business district. This loan ordinance was passed by a vote of 152,852 in favor; 12,772 opposed, and the work to be done thereunder was thus determined to be a necessary preliminary step in clearing the way for the construction of the recommended subway system. City Councils called a special election which was held on April 29, 1915, to vote on a loan of \$6,000,000 to be used towards the construction of a subway railway in Broad Street from League Island to Olney Avenue, with the necessary branch lines northeast and northwest from Broad Street; and the construction of an elevated railway from Front and Arch Streets to Rhawn Street, via Front Street Kensington Avenue and Franklin Avenue to Rhawn Street.

At this election the vote in favor of the loan was 84,545; opposed to the loan 9,110.

City Councils passed ordinances which were approved July 2nd, 1915, one of which authorized the construction of a portion of the subway railway, and making an appropriation therefor and the other authorized the construction of a portion of the elevated railway from Front and Arch Streets to Rhawn Street and making an appropriation therefor,

AN ORDINANCE

To authorize the Department of City Transit to construct a portion of the subway railway to be established in Broad Street between League Island and Olney Avenue.

Section 1. The Select and Common Councils of the City of Philadelphia do ordain, That the Department of City Transit be and is hereby authorized and directed to enter into a contract or contracts for the construction of a portion of the subway railway to be established in Broad Street, between League Island and Olney Avenue, with the necessary branch lines northeast and northwest from Broad Street, comprising the section extending from a point in Broad Street at the north side of the existing subway structure of the Market Street Elevated Passenger Railway Company, north of City Hall, to a point in Broad Street at the south side of the existing subway structure of the Market Street Elevated Passenger Railway Company, south of City Hall, and passing diagonally under the westerly side of City Hall, together with any or all work appurtenance thereto, including station platforms and entrances.

Section 2. That the sum of three million (3,000,000)





dollars be, and is hereby set aside in Item 180 (loan) of the appropriation to the Department of City Transit, to be used for or toward the construction of the said section of the Broad Street subway, railway and work appurtenant thereto.

Section 3. That the Director of the Department of City Transit be, and is hereby authorized and directed to advertise for proposals, and to award a contract or contracts, as provided in existing ordinances and laws, for the construction of the said section of the Broad Street subway railway and work appurtenant thereto, in accordance with plans and specifications to be prepared by the Department of City Transit, and is also authorized to appoint assistants and inspectors as may be requisite, and to pay all expenses for borings, salaries, inspection, tests, transportation, and incidental expenses not otherwise provided for, out of the appropriation for the cost of the said work.

Section 4. That any or all permits heretofore granted for construction of underground structures within the street lines which may interfere with or be in the way of the said subway structure be, and are hereby revoked.

Section 5. The Mayor is hereby authorized and directed to enter security, on behalf of the City of Philadelphia, for the payment of any damages for which the City may be held liable, which may be caused in carrying into effect any or all of the provisions of this ordinance.

All ordinances or parts of ordinances inconsistent herewith be and the same are hereby expressly repealed.

#### AN ORDINANCE

To authorize the Department of City Transit to construct a portion of the elevated railway to be established from Front and Arch Streets to Rhawn Street.

Section 1. The Select and Common Councils of the City of Philadelphia do ordain, That the Department of City Transit be, and is hereby authorized and directed to enter into contracts for the construction of a portion of the elevated railway to be established from Front and Arch Streets to Rhawn Street via Front Street, Kensington Avenue and Frankford Avenue to Rhawn Street, comprising the section extending in Front Street between Callowhill Street and Kensington Avenue, in Kensington Avenue between Front Street and Frankford Avenue, and in Frankford Avenue between Kensington Avenue and Rhawn Street, together with any or all work appurtenant thereto.

Section 2. That the sum of three million (3,000,000) dollars be and is hereby set aside in Item 180 (loan)



of the appropriation to the Department of City Transit, to be used for or toward the construction of the said section of elevated railway and work appurtenant thereto.

Section 3. That the Director of the Department of City Transit be, and is hereby authorized and directed to advertise for proposals, and to award contracts, as provided in existing ordinances and laws, for the construction of any portion or portions of the said section of elevated railway and work appurtenant thereto, in accordance with plans and specifications to be prepared by the Department of City Transit, and it also authorized to appoint assistants and inspectors as may be requisite, and to pay all expenses for borings, salaries, inspection, tests, transportation and incidental expenses not otherwise provided for, out of the appropriation for the cost of the said work.

Section 4. That any or all permits heretofore granted for construction of underground or other structures within the street lines which may interfere with or be in the way of the said elevated structure or foundations thereof be, and are hereby revoked.

Section 5. The Mayor is hereby authorized and directed to enter security, on behalf of the city of Philadelphia, for the payment of any damages for which the City may be held liable, which may be caused in carrying into effect any or all the provisions of this ordinance.

All ordinances or parts of ordinance inconsistent herewith be, and the same are hereby expressly repealed.





REPORT OF CITY TRANSIT DEPARTMENT 1914.

Philadelphia, January 1, 1915.

Hon. Rudolph Blankenburg,  
Mayor of Philadelphia.

My dear Sir:

I have the honor to submit herewith the second annual report of the Department of City Transit for the year 1914:

In order to outline the present status of the project for which this department was established, I call to your attention the recommendations of my previous report, as partially modified and enlarged by additional recommendations which are referred to at length herein.

Recommended High-Speed Lines.

The recommended high-speed lines comprise:

1. The Broad Street subway with elevated branches, extending from League Island to Olney Avenue and Rising Sun Avenue, with a delivery loop in the business district under Arch, Locust and Eighth Streets, estimated to cost approximately \$35,000,000 without equipment.

In respect to the principle of securing the greatest good to the greatest number of people, it was recommended in the previous report that the Broad Street line be divided into two branches above Pike Street, which could be built as elevated structures and therefore would open up and serve a large territory at a less cost than would a single subway line in Broad Street. As the residents of this locality prefer a subway to an elevated line north of Pike Street, the department is making careful studies of all possible routes and combinations of routes in this territory having regard to this preference and to the desirability of providing for branches or lines to Germantown on the west and to Olney on the east.

2. An elevated railway extending from the present Market Street subway at Front and Arch Streets, over Front Street, Kensington Avenue and Frankford Avenue to Bridge Street, Frankford estimated to cost approximately \$6,500,000 without equipment.

3. An elevated railway extending from the present Market Street Elevated line at 30th and Market Streets generally over private right-of-way and Woodland Avenue to Darby, estimated to cost approximately \$4,400,000 without equipment.

4. Later when the delivery loop is ready for use, the Northwestern Subway-Elevated Line extending from the delivery loop at City Hall station, thence beneath the Parkway to a point near



the Green Street entrance to the park, thence northwardly over 29th Street to Henry Avenue and thence to Roxborough, estimated to cost approximately \$8,500,000 without equipment.

The total cost of the lines recommended for immediate construction will be approximately \$46,000,000 and the cost of their equipment is estimated at approximately \$12,000,000. In connection with the construction of the Broad Street subway, it is recommended that tracks and connections be provided for the subway under the Parkway. These will cost about \$1,750,000 additional.

#### Progress of Work on Plans and Specifications.

During the past year the engineering force of this department, comprising a total of about one hundred men, has been at work on the plans and specifications for the new high-speed lines. Plans and specifications have been completed for the relocation of sewers draining the district which will be occupied by the delivery loop, and bids will be invited as soon as the \$500,000 made available by the people at the last election are appropriated by City Councils.

Plans and specifications for the Frankford Elevated line will be completed next month, and those for the Darby Elevated line later in the year.

Rapid progress is being made on the plans and specifications for the construction of the delivery loop and the Broad Street subway. Work should be started on the delivery loop first, as, on account of the great number of sub-surface structures in the business district, the loop will require six months longer for construction than the Broad Street subway.

Plans and specifications for the construction of the delivery loop will be ready for bidders early in the coming year, and the construction work should be started without delay.

#### Joint Special Committee.

On January 15, 1914, City Councils by resolution authorized "The appointment of a joint special committee to confer with the Director of the Department of City Transit and the officers of the Philadelphia Rapid Transit Company with reference to an agreement between the said company and the City of Philadelphia for improved transit facilities; also, to consider the advisability in connection therewith of a universal five cent fare." (See appendix D-1).

At a meeting of this special committee, held on March 25, 1914, the Philadelphia Rapid Transit Company submitted a proposal for rapid transit development with universal free transfers. At the same meeting, I called attention to the enormous cost which this proposal would impose upon the city if accepted, and at the same time submitted a counter proposal in the form of a tentative suggestion. Since this meeting the committee has neither met nor reported. Thereafter, I had a number of conferences with officials of the Philadelphia Rapid Transit





Company and succeeded in obtaining their agreement on May 27, 1911, to a cooperative program, given in full as appendix "A" and outlined in part, briefly as follows:

#### Cooperative Program For Transit Development.

This cooperative program provides, among other things, that if, as and when the city builds the three high-speed lines recommended for immediate construction at a cost of approximately \$46,000,000, the Philadelphia Rapid Transit Company will equip them at a primary cost of about \$12,000,000 and operate them in conjunction with its present system. The equipment and operation of future city-owned lines and extensions is similarly provided for. In addition, a tube under the Delaware River to Camden to be built by interests holding that franchise and to be leased to the Philadelphia Rapid Transit Company and operated as an extension to the Market Street elevated service, with an additional fare of three cents.

As first charges upon the earnings of the city-owned lines, the company will receive:

1. Six per cent, interest upon its investment in equipment.
2. A preferential payment which will sustain the company's normal net income gained prior to the establishment of the city-owned lines against whatever decrease or loss may be due to the company's participation in the cooperative program, excepting that loss which results solely from the elimination of the exchange tickets for which the company is to be compensated otherwise.

After the above payments have been made to the company the city receives cumulative interest and sinking fund upon its investment and thereafter the surplus earnings are divided between the city and the company in proportion to their relative investments.

The cooperative program further provides for the elimination of exchange tickets and their replacement by free transfers, both on the surface lines and also between surface and high-speed lines, so that it will be possible to make a complete journey in a forward direction between any two points within the city for one five cent fare.

There is no question whatever as to the city's ability to carry out its part of this program. There is no question as to the Philadelphia Rapid Transit Company's ability to raise the \$12,000,000 required to equip the city-owned high-speed lines, for a most attractive security would be furnished by a first mortgage on that equipment and upon the 50-year leasehold of the municipal facilities and the earnings produced thereby.

In this cooperative program the Department of City Transit has gone to the limit in recommending reasonable protection to the existing system on account of its cooperation in establishing and operating the new rapid transit facilities in a manner which will best serve the public.

It is preferable that the Philadelphia Rapid Transit Company shall operate the recommended high-speed lines in order that the



city's street railway transportation may be conducted by one company as a unit and that the public may obtain the full advantage of the extensive surface system as an auxiliary to the high-speed system and further that the existing company may not suffer loss of existing net income by reason of the establishment of a competitive high-speed system by the city.

The city would therefore be warranted in extending to the Philadelphia Rapid Transit Company such protection to its net income as would be afforded by the preferential payment provided in the program, in consideration of the company's cooperation as provided therein. It is not contemplated that this protection shall cover any losses or contingencies other than diversion of net income by the city-built lines, as provided by the terms of the cooperative program.

In order to arrive at the amount of this preferential payment, it will be necessary that the books of the company shall be carefully kept and audited with regard to an accurate determination of the company's net income, for three years before the beginning of operation of the city-built lines, and every year thereafter.

Any preferential payments allowed should be based upon the strictest supervision and audits of the company's accounts and methods of accounting, and should be limited solely to protecting the company's net income prior to the opening of the high-speed lines, against the net loss thereto due solely to the establishment of the high-speed lines and to the equipment and operation thereof by the company, with credits for any advantages gained by the company. The company should enjoy full advantage of the sources of such credits after a preferential becomes unnecessary to assure the company's net income as contemplated.

#### Offsets to City Expenditure.

In connection with the cooperative program, the investment by the city of \$46,000,000 will incur, under existing law, exclusive of taxes, a yearly fixed charge of \$2,900,000 for a period of 30 years. This fixed charge includes, in addition to interest, the yearly sinking fund payments necessary to extinguish the entire principal debt in 30 years, at the end of which time the system would belong to the city free of its obligations. The proposed constitutional amendment relating to city loans, will, when finally enacted, reduce this annual fixed charge to an average of about \$2,390,000, exclusive of taxes.

To offset this yearly charge, the city will have the annual net income produced by the recommended lines over and above the reasonable payments allowed the operator. In addition thereto, the city and the citizens will receive at once the following annual returns which will increase from year to year in perpetuity:

1. Increase in tax collections resulting from the enormous increase in taxable value of real estate produced by the new high-speed lines and estimated at \$1,000,000 per year and upwards.

2. The elimination of the exchange ticket charge, now imposed upon the public, amounting to over \$800,000 per year.







3. The value of time saved the traveling public, which at the rate of 15 cents per hour, would amount to upwards of \$1,000,000 per year.

4. The one mill tax on personal property surrendered by the state to the city under recent legislation as a practical subsidy in aid of transit development, and amounting now to about \$280,000 per year, but which should be greatly increased by a pending amendment.

These ever-increasing indirect but tangible returns thus aggregate at the outset nearly \$4,000,000 per year without including the net income produced by the operation of the high-speed lines and will much more than offset the yearly fixed charges required to pay the interest on the cost and to extinguish the principal debt itself during the period of 30 years.

By reference to appendix "B" it will be seen that the facilities as recommended will not impose any burden whatever on the normal current revenue of the city in any year.

#### Independent Program for Transit Development.

I recommend that the city take such preliminary steps as will require the Union Traction stockholders to make their choice and to accept one of these alternatives, namely: to make an additional investment on such terms as they may agree upon with the Philadelphia Rapid Transit Company, or to decline to do so.

In the latter case the city should proceed with the construction of the Broad Street subway with branches and delivery loop, with proper provision for the northwestern section, and also with the construction of the Frankford and Woodland Avenue elevated lines, and their connection either by subway under Chestnut Street or by securing an arrangement on a fair basis for through-routing these lines with the present Market Street Subway-Elevated line. Such joint use of the Market Street line should be made mandatory an order of the Public Service Commission by amendment of the public service company act of the State of Pennsylvania. Such an amendment is being prepared for introduction in the Legislature. Joint rates to provide free transfer of passengers on a five cent fare basis between the new system and the old should also be made possible.

If the existing companies shall fail to ratify the cooperative program for transit development with free transfers, an independent operator can readily be secured to equip and operate the city-owned lines in competition with the existing system.

#### Action Needed to be Taken by Councils.

The following steps must be taken by Councils before any contracts can be let for the construction of the recommended high-speed system by the city:

1. Passage of an ordinance calling for a special election to enable the citizens to vote in favor of increasing the city's indebtedness by an amount sufficient to provide for the initial



expenditures required for the construction of the high-speed system.

2. Consideration, determination and adoption of the various routes for the high-speed lines.

3. Submission of the plan of municipal transit development to the Public Service Commission of Pennsylvania for approval as required by law.

4. Appropriation of the money for the initial construction of the high-speed lines.

As soon as these steps have been taken by Councils and the necessary approval of the Public Service Commission is secured, bids will be invited by this department, contracts will be awarded, and the construction started without delay.

The negotiation of a contract with an operator for the equipment and operation of the lines can well be entered into later.

In their appropriations and authorizations, Councils should afford the department the widest latitude consistent with public policy, so that the system can be established independently of the existing companies if necessary. This will enable the city to enforce the complete acceptance of the cooperative program which has already been agreed to by officials of the Philadelphia Rapid Transit Company.

#### New Recommendations.

Since the submission of the transit commissioner's report with recommendations on July 24, 1913, the department has found in its work of design that the following modifications are desirable in the plans as recommended:

1. Location of west side of delivery loop in Broad Street instead of 15th Street.

At the time of preparation of the transit commissioner's report, the west side of the delivery loop was located in 15th Street with a station between Market and Chestnut Streets. It is now recommended that the west side of the loop shall be located in Broad Street rather than 15th Street which will save considerable distance, curvature, and avoid serious engineering problems.

2. Parkway Connection.

When the complicated and expensive construction in Broad Street along and under the City Hall is in progress, it would seem advisable to provide at the same time a connection for the subway in the Parkway which should be built in the near future. With this in view, therefore, the west side of the delivery loop is being designed with four tracks so connected as to afford suitable routing accommodations for the Parkway line. This provision will involve an extra expenditure of about \$1,750,000.





3. Pennsylvania Railroad Subway in Broad Street.

Since the submission of the transit commissioner's report, the Pennsylvania Railroad Company has formulated tentative plans for making a subway connection between the New York Division and Broad Street Station, partially via Broad Street. The route of this proposed subway lies in north Broad Street from Ridge Avenue to Filbert Street. It is contemplated to use this connection for through routing of trains.

4. Location of south side of delivery loop in Locust Street instead of in Walnut Street.

At the special request of the Philadelphia Board of Trade, and other organizations, a further study was made of the choice of location for the south side of the delivery loop as between Walnut Street and Locust Street. The considerations favorable to Walnut Street were: that it is desirable to keep a loop as narrow as possible; that the distance to be traversed by trains looping to the north would be less; and that the stations on Walnut Street would be more convenient to the important shopping districts on Chestnut Street.

On the other hand, the location in Locust Street permits the location of a station on Broad Street between Chestnut and Walnut Streets, and will have the effect of enlarging the central business district. This will also have a bearing upon the projected widening of Locust Street. The grades and curves necessary for the connections at Broad Street can be made more favorable at Locust Street than at Walnut Street.

One important purpose of the recommended loop is to provide terminal facilities for the four tracks which will be necessary in north Broad Street. By way of the loop, a part of the north Broad Street trains can be turned back after discharging their passengers. Manifestly, the four tracks in north Broad Street cannot be run into two tracks in south Broad Street, and in view of experience and present day understanding of stub-end terminals, it would be the utmost folly to contemplate any similar plan for any part of the north Broad Street service.

5. Alternate location for branches of north Broad Street subway.

At the request of the residents of the vicinity of Logan, and of the districts north thereof and of Germantown, alternate designs are being prepared for the extension of the Broad Street subway northward. These alternate plans contemplate, in addition to the northeasterly elevated spur from Broad Street via Luzerne Street, Ninth Street and the Northeast Boulevard as originally recommended, a two track subway in Broad Street north from Pike Street with direct connection to Germantown, so designed as to meet the local conditions and sentiment as nearly as possible.

6. Transfers between surface and high-speed lines at all stations.

The co-operative program or arrangement negotiated with



officials of the Philadelphia Rapid Transit Company for equipment and operation of the recommended subway and elevated lines. Provides that the company shall give free transfers in a forward direction between its surface system and all high-speed lines at every station on the latter where surface lines intersect. This was determined upon in order to extend the full benefits of the high-speed lines to the district and the great body of population resident within three miles of City Hall. While this population would still find the surface lines more convenient for the short rides to and from the central delivery district, it should be afforded opportunity to use the high-speed system in its journeys to other parts of the city. As there will be little or no time saving by way of the high-speed lines between this district and the central delivery district, it need not be feared that this extension of the transfer privileges will tend to congest the high-speed lines with short-haul passengers.

#### 7. Camden Tube.

In any arrangement made by the city with a private corporation for operating the city-built rapid transit lines, it should be required that such corporation secure the construction and equipment of a tube under the Delaware River to Camden, connecting with either or both the existing Market Street subway and the recommended Chestnut street subway.

#### Financial Estimates and Statistical Work.

During the negotiations with the Philadelphia Rapid Transit Company, a force of men was kept continuously at work preparing estimates in greatest detail of the financial results to all parties concerned from each one of the plans proposed. These plans and proposals involved a great number of combinations and alternative propositions, falling principally under the following heads:

- Plans Discussed in Early Negotiations.
- Philadelphia Rapid Transit Company's Proposal.
- Tentative Suggestions of the Department.
- Final Arrangement Entitled "Program for Transit Development with Free Transfers."
- Operation by Company Other Than Philadelphia Rapid Transit Company.

Summaries of the estimates under the two last headings are given in appendix B.

#### Study of Exchange System.

In order to fix the bearing and relation of the eight-cent exchange system and its elimination to the problem of rapid transit development, the department has made an exhaustive investigation of the limitations imposed by the system and of its application to various parts of the city. In this connection, the range of travel at various rates of fare has been determined for each locality, together with the number of passengers affected.

In order that any resident of Philadelphia may be able





to ascertain the extent of the discrimination of the present exchange ticket and the routing of the present lines of transportation, there has been prepared by this department, included herewith as appendix A, a series of maps illustrating this discrimination for each separate locality, together with a description of the method by which these maps were prepared and with directions for using them.

#### Preparation of Contract for Equipment and Operation.

Following the conclusion of the negotiations with officials of the Philadelphia Rapid Transit Company, which resulted in a tentative program for equipping and operating the recommended city-built rapid transit lines, the department has prepared a complete draft of contract covering such equipment and operation in accordance with the general terms of the program. This draft has been printed in form for submission to the city solicitor.

#### Preparation of Detailed Description of Methods Used in Transit Commissioner's Investigation.

In order to furnish a complete record in detail of the work of the transit commissioner's office, a minute description was prepared of the methods used. This description is given in appendix C in somewhat condensed form.

#### Study of Philadelphia Rapid Transit Company Reports.

In connection with the estimates of financial results of operation under the various plans of cooperation between the city and the Philadelphia Rapid Transit Company, a careful study and analysis have been made of the various financial reports of the Company as contained in the annual reports to stockholders and to the state governmental authorities at Harrisburg.



SUMMARY

Appropriations

Appropriation by Ordinance of Councils, approved Dec. 31, 1913 .....	\$254,530 00
Transfers away from department during 1914 .....	<u>37,431 00</u>
Net appropriation .....	\$217,099 60

Disbursements

Personal Services:

Salaries of regular engineering, administrative and clerical force .....	\$133,883 21
Special engineering services .....	<u>60 000 00</u>
	\$193,883 21

Services other than Personal:

Postage, carfare, maintenance and repair of equipment, telephone, telegraph, express and miscellaneous service ...	3,360 83
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Supplies and Equipment:

Miscellaneous purchases of supplies charged to expense .....	\$ 1,144 87
Miscellaneous purchases charged to equipment .....	<u>296 07</u>
	1,440 94

Fixed Charges:

Rent of offices in Bourse Building .....	\$9,000 00
Miscellaneous rentals, etc .....	<u>117 96</u>
	9,117 96

Capital Outlay:

Borings:

Contract: Philip Flaghouse - Test borings in Arch Street Kensington Avenue, Frankford Avenue, Walnut Street, Sixth Street, Broad Street, and any other street designated .....	\$1,800 00
Amount bound by contract and carried over to 1915 .....	<u>1,128 30</u>
	671 70

Total Disbursements .....	\$208,474 64
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Balance merging .....	7,496 06
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Balance not merging .....	<u>1,128 30</u>
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\$217,099 00

Note: The above statement does not include appropriations of \$13,123.58 made to the Department of Supplies for purchase of engineering and office supplies and equipment for use of the Department of City Transit. The expenditures from this appropriation totaled \$12,379.27; \$500.00 additional is bound by contract and carried over to 1915; balance, \$244.31, merging.





A PROGRAM FOR RAPID TRANSIT DEVELOPMENT WITH UNIVERSAL FREE TRANSFERS, RESULTING FROM CONFERENCES BETWEEN THE DIRECTOR OF THE DEPARTMENT OF CITY TRANSIT AND THE MANAGEMENT OF THE PHILADELPHIA RAPID TRANSIT COMPANY - SUBMITTED TO HIS HONOR THE MAYOR, AND THE SPECIAL COMMITTEE OF CITY COUNCILS APPOINTED UNDER RESOLUTION OF JANUARY 15, 1916, FOR CONSIDERATION.

Philadelphia, May 27th, 1916.

A complete program has been outlined at the conferences which have been held between the director of the Department of City Transit and the management of the Philadelphia Rapid Transit Company and it is herewith submitted for consideration.

#### Lines to be Built.

This program provides for the construction, equipment and operation of:

1. The Frankford Elevated Line from a point of connection with the present Market Street subway-elevated at Front and Arch Streets to Frankford.
2. The Darby Elevated Line from a point of connection with the Market Street elevated line at Thirtieth and Market Streets to Darby.
3. The recommended Broad Street Subway, with such branches as may be determined on, and the Delivery Loop.
4. The Camden Tube from a point of connection with the present Market Street subway at or near Front and Market Streets to the Pennsylvania Terminal in Camden.

#### Unified System - 5 cent Fare.

The program further provides for the operation of the existing and new transit facilities of the city as a unit, in such manner as will best serve the public, including the elimination of all exchange tickets; and further, for the issuing of free transfers wherever surface lines intersect high-speed lines (city's and company's - Camden tube excepted) at station points, and at all points of intersection between high-speed lines (Camden tube excepted); the intent being to make all high-speed lines (city's and company's) available as a link in a complete journey in a forward direction between any two points within the city for one five-cent fare.

Many vital provisions, which are commented on elsewhere, will be found in the program which provides as follows:

Company's Proposed Investment.	Estimated Cost
Frankford and Darby elevated (equipment) .....	\$4,603,000
Broad Street subway (equipment) .....	<u>7,393,000</u>
Total .....	\$11,996,000



(The tube under the Delaware River to Camden to be built by interests holding that franchise. This line to be leased to the Philadelphia Rapid Transit Company and operated as an extension to the Market Street elevated service, but with an additional fare of three cents. The franchise to be granted by the city enabling construction of the tube to be for 50 years, and ownership of the tube, subject to bonds issued for the cost thereof, to be vested in P. R. T. Co.).

City's Proposed Investment.	Estimated Cost.
Frankford elevated (structure) .....	\$6,510,000
Darby elevated (structure) .....	4,390,000
Broad Street subway-delivery loop and extensions (structure) .....	<u>34,682,000</u>
Total .....	\$45,582,000

Note.- Frankford-Darby line to be operated via Market Street subway between Front and Arch Streets and Thirtieth and Market Streets, pending the time when the city constructs the Chestnut Street subway or other city-built connections or delivery facilities for these two lines.

#### Method of Equipment and Operation.

Company to agree to provide all necessary equipment for and to operate the above mentioned city-built lines, or any of them, if and when built, and at the option of the city, any or all city-built lines built during the term of this contract, on the following basis:

From net earnings deduct Items 1, 2 and 3, as follows:

1. (a) Interest on company's investment at six per cent., cumulative.

(b) In addition to the six per cent, return on the company's investment for such equipment, beginning ten years from the date of this contract, the city shall allow, and the company shall pay, to a depository to be designated by the city, for its account, one per cent. per annum upon the cost of such equipment, for the purpose of amortizing the cost of such equipment during the term of this contract.

The said depository may invest such amortization fund, as far as practicable, in the bonds which the company has issued to pay for such cost of equipment, at a price not to exceed 110 per cent. of their face value with accrued interest, and the interest on such bonds bought with this sinking fund is to accrue for the benefit of and to be paid to the sinking fund for the purchase of additional bonds.

The said payment of one per cent. per annum for such sinking fund on the equipment purchased during each year of this contract shall cease upon completion of said amortization.

Upon the expiration of the contract period of 50 years, the company shall surrender the then existing equipment of the city-built lines to the city on being paid the cost thereof.





Accruals in the aforesaid sinking fund may be used by the city for the purpose of making such payments.

When the equipment is so surrendered by the company to the city, all reserve, depreciation and amortization funds which may have been established and accumulated in connection with the maintenance and operation of the city-built lines shall be paid to the city.

## 2. Preferential Payments.

The base figure which shall be used in ascertaining the amount of the preferential payments as hereinafter specified, shall be that amount which represents 110 per cent. of the average annual net income (other than that derived from exchange tickets) of the company from its present system with surface extensions for the two fiscal years prior to the operation of the first city-owned high-speed line, unless during the first of the two fiscal years aforesaid there be some unforeseen, unusual and abnormal occurrence which causes an abnormal decrease in the net income of the company, then the base figure may be taken at 115 per cent. of such average annual net income for the preceding and succeeding fiscal year; or if there should be such an occurrence during the last of the two first mentioned fiscal years which causes an abnormal decrease in the net income, then the base figure may be taken at 120 per cent. of such average annual net income for the two preceding fiscal years.

If other city-owned high-speed line or lines be placed in operation thereafter while the company is entitled to the preferential payment calculated as prescribed herein, then the base figure of annual net income of the present system with surface extensions prior to the beginning of operation of such subsequent city-owned line or lines should be calculated as prescribed for the first city-owned line, but there shall be added the net income specified diverted from the present system with surface extensions by the operation of the said operated city-owned line or lines.

If other city-owned lines be placed in operation after a preferential payment ceases to be necessary, then the base figure of annual net income of the present system with surface extensions prior to beginning of operation of such subsequent city-owned lines shall be calculated as prescribed for the first city-owned line.

If the net income of the then existing system of the P.R.T. Co. (except Camden Tube) in any year after the opening of a municipally-owned line falls below the base figure, the preferential payment shall be the amount required to make up the difference between the net income for such year and the base figure; provided however, the amount of any such preferential payment shall be limited to and shall never exceed such decrease in the net income of the then existing system of the P. R. T. Co. (except Camden Tube) which results solely from the diversion of such normal net income as may have been gained prior to the opening of municipally-owned line or lines.

In determining the amount of any preferential payment it will be presumed that any decrease in the company's net income below the base figure is due to such diversion of traffic, except to such extent



as it may be shown to be due to other causes.

#### Credits Allowed City on Preferential Payments.

After the preferential for any year has been so determined, it will be reduced by these credits, namely:

(a) The net income resulting from the operation of the Camden Tube.

(b) The difference between the rate paid and six per cent. on operator's equipment investment.

(c) Payment made for the use of the Market Street line between Thirtieth and Front and Arch Streets.

3. Interest and sinking fund on city's investment, cumulative.

#### Division of Surplus Earnings.

4. Divide balance of surplus earnings of all city-built lines between the city and company, in proportion to their relative investment therein (Market Street subway investment excluded).

#### Free Transfers.

5. Free transfers to be given wherever surface lines intersect high-speed lines (city's and company's) at station points, enabling a passenger to transfer in a forward direction (except to and from the Camden Tube), but the aforesaid free transfers shall not be made in the business district until January 1, 1920.

Free transfers to be given all passengers transferring in a forward direction between all company-owned and municipally-owned rapid transit lines at points of intersection where stations exist (except to and from the Camden Tube).

The intent being to make all high-speed lines (city's and company's) available as a link in a complete journey in a forward direction between any two points within the city for five cents, but not to compel the company to give a transfer upon a transfer on its own surface system without a high-speed line intervening. In all cases where the fare collected covers a ride upon any line or lines of the company and upon any line or lines of the city, the fare collected shall be equally divided between the company-owned and the municipally-owned lines; that is to say, 2 1/2 cents to the company-owned lines and 2 1/2 cents to the municipally-owned lines. Should the result of the aforesaid division of fares appear to be inequitable and unjust to either party, such party may require the question to be submitted to a board of arbitration for determination, one member of which board shall be appointed by the city, one by the company and the third by the Public Service Commission. The findings of the board of arbitration to be subject to final review only by the Public Service Commission of Pennsylvania.

Such regulations to be established and enforced as may be found necessary to prevent the misuse of transfers.





### Future High-Speed Lines.

6. When the city builds the Chestnut Street subway, or other delivery facilities or connections to the Frankford and Darby elevated lines, company to equip and operate the same on the above basis.

City to have the right to require company to equip and operate on the above basis additional rapid transit lines or extensions which the city may from time to time build.

### Surface Extensions.

7. City to have the right to require the company to extend its surface system from time to time after the Public Service Commission, upon hearing, determines that such extensions are likely to be reasonably remunerative, either separately or in conjunction with the system, to the P. R. T. Co., provided not more than approximately four miles of single track be requested by the city for the years ending June, 1916, and June, 1917.

### Extension of 1907 Contract.

8. 1907 contract to be extended seven years. In future division of earnings provided under contract, city to receive during last seven years of extended contract and thereafter (if property is not purchased at expiration of extended term) all surplus earnings over six per cent. on par value of P.R.T. Co. stock.

Note.- City to be permitted to capitalize its interest and sinking fund accruals to end of first year of operation. Company to be permitted to capitalize its interest accruals to end of first year of operation. Such accruals as are capitalized shall not be taken out of earnings and shall be considered a proportionate part of the cost.

### Market Street Rental.

During the operation of the Frankford-Darby line through Market Street subway, there shall be charged against the earnings derived from such line under item 1, such portion of the fixed charges accruing against that portion of the structure which is used by the Frankford-Darby line as shall bear the same proportion to the whole fixed charge on that portion as the proportion of car miles operated by the Frankford-Darby trains through that portion of the subway bears to the car-mileage of all trains operated through that portion of the subway. The fixed charge against the operation of that portion of the subway which is used for surface cars not to be included in the above calculation. The term fixed charge in this paragraph means six per cent. on cost.

If the city elects to build the Frankford line first, the operation and fixed charges against the Frankford line shall be calculated on the costs westwardly on Market Street to Thirteenth Street only, subject to the above mentioned credit. Such Frankford and Darby trains as may be routed through to Sixty-ninth Street or Garden shall only be charged with one-half of the expense and fixed charges which



would be due company for the operation of through trains in the section between Front and Arch Streets and Thirtieth and Market Streets.

#### Union Traction Cooperation.

The Philadelphia Rapid Transit Company will rely upon the Union Traction to aid in securing only such funds as will be required for the normal extension of the existing system, the requirements for which will be greatly lessened by the establishment of the new high-speed lines.

Wages paid on and charged against the operation of all new high-speed lines shall be reasonably compensatory for services rendered, but shall not exceed the same rate per hour paid for similar services on company's high-speed lines at that time.

Union Traction Company and Market Street Elevated Passenger Railway Company to become parties to and be bound by the terms of the agreement with the city.

All dividends accrued on P. R. T. Co. stock up to December 31, 1914, to be waived and cancelled.

The Department of City Transit to have free access at all times to the books, accounts and records of the company and the right to audit the same.

#### Exchange Tickets Eliminated.

Company to eliminate all exchange tickets, except those in the delivery district, which is defined as bounded by Arch and Walnut Streets, and the Delaware and Schuylkill Rivers, both of the aforesaid streets inclusive on January 1, 1916, and the remainder of the exchange tickets on January 1, 1920, when it is hoped that the delivery loop will be in full operation, thus furnishing such added carrying capacity as will avoid any undue congestion in the delivery district. On and after January 1, 1916, one free transfer will be allowed in a forward direction to each passenger using surface lines exclusively at any point where surface lines intersect outside of the delivery district as above defined. On and after January 1, 1920, one free transfer will be allowed in a forward direction to each passenger using surface lines exclusively at any point in Philadelphia where such lines intersect, in consideration of which the city will surrender to company accrual in sinking fund, and permit the company to postpone future payments to the sinking fund for ten years from July 1, 1914. The amount so surrendered and postponed to be made up by such larger annual payments by the company after the aforesaid ten years as will be required to produce the same amount in sinking fund at the expiration of the 1907 contract extended for seven years as would, with interest included, have been produced by the original sinking fund payments at the end of the 50 year term. Further, the city will relieve the company of the payment of approximately \$116,000 a year, tax on dividends, for a period of six years, beginning January 1, 1915.

#### Improved Surface Routing.





The company to have, forthwith, authority to make such changes in its routes and lines as will enable it to take advantage of the economics which can be gained from the substitution of free transfers for exchange tickets.

#### Arbitration.

In case of any dispute arising under the agreement, the question shall be arbitrated by one representative each of city, company and Public Service Commission, whose findings shall be subject to review and final decision by the Public Service Commission.

#### COMMENTS ON THE PROGRAM

The salient features of the program are as follows:

#### RECOMMENDED INVESTMENT \$63,000,000

The program provides for a total investment of approximately sixty-three millions of dollars in the transit development, of which about forty-five and one-half millions would be invested by the city in building the subway and elevated lines (which the city would own), about twelve millions would be provided by the Philadelphia Rapid Transit Company for the equipment of the municipally-owned lines and about six millions would be provided for the Rapid Transit Company by outside interests in constructing the Camden Tube. The P. R. T. Co., as operator, would be allowed to deduct from the earnings of the municipally-owned lines six per cent. on the cost of the equipment supplied therefor, and, after ten years, an additional one per cent. on the cost of equipment, which would be deposited in the fund to be accumulated toward the amortization of that cost, and that fund would be available to the city in paying for and taking over the equipment at the end of the 50 years.

#### P. R. T. Co's Net Income Protected.

The company would also be protected to a reasonable extent only against such decrease in the net income of the company-owned lines (except Camden Tube) which would result solely from the diversion of such normal net income as may have been gained by the company prior to the opening of the municipally-owned line or lines, by the preferential payment, the necessity for which, it is calculated, would be eliminated by the normal growth of the company's business within a few years after the opening of the municipally-owned high-speed lines.

#### City's Fixed Charges Senior to any Company Profits From New Lines.

Subject to these prior deductions, the city would receive all interest and sinking fund payments accruing on the city's investment, before any further division of earnings would be made to the P. R. T. Co.

#### Divide Profits in Proportion to Investment.



Upon the city being paid its interest and sinking fund accruals on the city's investment in full, any remaining annual surplus resulting from the operation of the city-built lines would be divided between the city and the company in proportion to their relative investment therein (Market Street subway investment excluded).

#### Credits on Preferential Payments.

Upon any preferential payment due the company out of the earnings of the high-speed lines there would be deducted:

1. The net income resulting from the operation of the Camden Tube.
2. The difference between the interest rate paid by the company and the amount allowed, namely six per cent. on operator's equipment investment.
3. The rental paid for the temporary use of the Market Street subway-elevated line between Thirtieth and Market Street and Front and Arch Streets, by the Frankford-Darby line, until Chestnut Street subway is required.

#### City and Company Both Profit by Cooperation.

Thus the city gains the advantage of these items as credits on any preferential payments and also, in calculating the preferential which protects the P. R. T. Co., gains the advantage of any economies or savings which the P. R. T. Co., is enabled to accomplish in engaging in this cooperative program.

#### Free Transfers to All.

All exchange tickets would be eliminated outside of the district bounded by Arch and Walnut Streets (both inclusive) and the two rivers, on January 1, 1916, after which one free transfer would be allowed outside of that district to each passenger using the company's surface lines at all points of intersection. On January 1, 1920, the remaining exchange tickets would be eliminated and one free transfer would be allowed to each passenger using the company's surface lines at all points of intersection within the city.

Upon the elimination of all exchange tickets outside of the district bounded by Arch and Walnut Streets (both inclusive) and the two rivers, on January 1, 1916, passengers would be enabled to reach any point in that district by taking a line running east and west, either north of the district or south of the district, and by transferring free to the north and south line leading to the point in the delivery district which the passenger wishes to reach. The effect of this arrangement is to give the people a free transfer to the delivery district, subject only to such restrictions as are necessary to avoid the serious overloading of the east and west lines in the delivery district before the city has time to build the subway delivery loop to relieve such congestion as would result otherwise.

#### Exchange Tickets Eliminated.





In consideration of the elimination of exchange tickets by the company and the substitution of free transfers therefor, as above provided, the city would agree to release the company from the payment of the tax now paid upon dividends of subsidiary company stocks, as provided by ordinance, in the amount of approximately \$116,000 per annum, for a period of six years only, or a total amount of approximately \$696,000. The city would also surrender to the company the accrual in the sinking fund and permit the company to postpone future payments into the sinking fund for ten years from July 1, 1914, the sinking fund payments so surrendered and postponed to be made up by such larger annual payments by the company, after the aforesaid ten years, as will be required to produce the same amount in the sinking fund at the expiration of the 1907 contract extended for seven years, as would, with interest included, have been produced by the original sinking fund payment at the end of the 50-year term.

Thus the city pays only \$696,000 as above stated, in consideration of the elimination of all exchange tickets and the issuance of free transfers at all points as herein set forth.

#### Provision for Future Development.

It is further provided that ultimately, when the Market Street subway becomes overloaded (which will not be for many years) and when the city builds the Chestnut Street subway at that time, or other delivery facilities or connections to the Frankford and Darby lines, or when the city builds any additional rapid transit lines or extensions, the city would have the right to require the company to equip and operate the same on the basis prescribed.

#### Company to Make Surface Extensions.

The city would further have the right to require the company to extend its present surface system from time to time, as such extensions are reasonably justified.

#### Extension of Contract-Company's Profit Limited.

In making the proposed extension of the present contract between the city and the company for seven years beyond the present term thereof, in order that longer term bonds may be issued by the company for its financing, the interests of the city are safeguarded by providing that after the present 50-year term expires all surplus earnings on the stock of the P. R. T. Co., in excess of six per cent. on the par value, shall be turned over to the city.

#### Capitalize Construction Interest.

Provision also has been made for both city and company to capitalize practically all of the interest and sinking fund payments accruing on their investments during construction and during the first year of operation, so that such payments would not be a burden to the taxpayers of Philadelphia. This is the method pursued in all great constructive enterprises and provision therefor is made in the pending constitutional amendment.





### Frankford-Darby Line to Use Market Street.

In consideration of the P.R.T.Co., allowing the use of its present Market Street subway-elevated line for the through-routing of Frankford-Darby trains, the city would allow the P.R.T.Co. a rental out of the earnings of the high-speed line for the use thereof, but that rental would be limited to such proportion of the fixed charges accruing against that portion of the structure of the P.R.T.Co. which is used by the Frankford-Darby line as shall bear the same proportion to the whole fixed charge on that portion of such structure as the proportion of car miles operated by the Frankford-Darby trains through that portion of the subway bears to the car mileage of all trains operated through that portion of the subway, and the fixed charge against the operation of that portion of the subway which is used for surface cars is not included in the calculation.

### P. R. T. Co. Gives up \$12,000,000 Claim.

The 1907 contract between the city and the company provides that "The company shall not declare or pay any dividends to its stockholders beyond a return of six per cent. per annum, cumulative from January 1, 1907, on the actual amounts of capital paid into the treasury in cash, calculated from the date of the several payments, without at the same time appropriating from earnings and surplus and paying into the city treasury a sum equal to that portion of the total dividend which is in excess of the said six per cent. return, so that the city shall share with the stockholders equally in all net earnings properly distributable as dividends over and beyond a return of six per cent. per annum, cumulative from January 1, 1907, upon the paid-in capital stock of the company."

As the company has not paid any dividends on its stock since January 1, 1907, and under the 1907 contract is entitled to six per cent. dividends from that date, before sharing one-half of the profits with the city, a large amount of back dividends, amounting to about 42 per cent. or \$12,000,000, would have to be paid to the P.R.T.Co. stockholders out of any future net income of the company, in addition to six per cent. after this time on the par value of their stock, before the city could hope to have any return from the P.R.T. Co's present system.

The program provides that all dividends accrued on the P.R.T.Co. stock, up to December 31, 1914, shall be waived and cancelled, thereby cancelling what is equivalent to a \$12,000,000 obligation of the P.R.T.Co. to its stockholders, which would otherwise have to be liquidated before the city could share in the profits above six per cent. on the company's capital stock resulting from the company's own operations.

### City to Supervise Company's Accounts.

The program also provides that the Department of City Transit shall have free access at all times to the books, accounts and records of the company and the right to audit the same. This is in addition to the present provision in the 1907 contract, which gives the city controller the right to audit the company's books.

It is provided in the program for the Union Traction





Company and the Market Street Elevated Passenger Railway Company to become parties to and be bound by the terms of the program.

It is contemplated that the company shall forthwith make such changes in its routes and lines as will enable it to take advantage of the economies which may be gained by the substitution of free transfers for exchange tickets. This means that such people as are now carried by indirect routes (which are so arranged for the protection of the company's exchange ticket business) will be carried more directly than heretofore to destination for a five cent instead of an eight cent fare.

#### Union Traction Cooperation Needed.

The Union Traction Company will be expected to aid in securing only such funds as will be required for the normal extension of the existing surface system, the requirements for which will be greatly lessened by the establishment of the new high-speed lines.

#### One Great Unit For Public Service.

The program, as a whole, assures to the people of Philadelphia a splendid modern rapid transit system, operated in conjunction with the existing lines as one great unit, in a manner which will give the public the greatest service at the least cost.

#### City to Own New System.

It provides that the city is to own the new facilities and all their future net earnings excepting such reasonable payments as are allowed the operator, including six per cent. on operator's investment.

IT ASSURES TO THE CITY AND THE PEOPLE THE ADDED PROSPERITY AND COMFORT WHICH EVERY SUCH GREAT CONSTRUCTIVE ENTERPRISE AND ADDED CONVENIENCE BRINGS; THE COST WILL BE SLIGHT, AND FURTHERMORE THE COST WILL BE MORE THAN COMPLETELY AND GENEROUSLY OFFSET BY THE ONE-TENTH TAX ON PERSONAL PROPERTY WHICH HAS BEEN TURNED OVER BY THE STATE TO THE CITY AS A PRACTICAL SUBSIDY IN THE AID OF TRANSIT DEVELOPMENT, BY THE GREAT INCREASE IN PROPERTY VALUES AND THEREFORE IN TAX REVENUES WHICH WILL ACCRUE TO THE CITY TREASURY, AND BY THE CANCELLATION OF THE PRESENT EXCHANGE TICKET CHARGE ON THE PUBLIC OF \$800,000 PER ANNUM, WHICH AMOUNT WOULD HAVE INCREASED FROM YEAR TO YEAR.

THE INDIRECT ADVANTAGES MUST NOT BE OVERLOOKED. PRESENT AND EVER INCREASING CONGESTION WILL BE ELIMINATED. THE CITY'S GROWTH WILL BE ACCELERATED. THE EFFICIENCY OF THE POPULATION WILL BE INCREASED BY TIME SAVED, WHICH CAPITALIZED ON THE BASIS OF 15 cents PER HOUR AT FIVE PER CENT. WOULD AMOUNT TO UPWARDS OF \$38,000,000. THE CITY'S AREAS AVAILABLE FOR DEVELOPMENT WILL BE SO ENLARGED AS TO MAKE COMFORTABLE AND ECONOMICAL HOMES READILY AVAILABLE TO ALL, AND UNDUE CONGESTION OF POPULATION WILL BE PREVENTED.



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REPORT OF CITY TRANSIT DEPARTMENT 1915.

Early in the year 1915, Councils took their first decisive steps toward rapid transit construction by appropriating \$500,000 for sewer alteration and by calling an election to authorize the city to borrow \$6,000,000 for subway and elevated construction. On April 29th, by a vote in the ratio of more than nine to one, the loan was authorized, and on July 2nd, Councils appropriated \$3,000,000 for the Broad Street Subway and \$3,000,000 for the Frankford Elevated Railway. Immediately thereafter a petition to the Public Service Commission of the Commonwealth of Pennsylvania for a certificate of Public convenience was framed, and this petition was granted on August 14th.

On August 19th the department awarded contracts for the first section of the Broad Street Subway, and for a large part of the foundations for the Frankford Elevated Railway.

On October 19th and 26th contracts were awarded for the steel superstructure for about 54 per cent. of the Frankford Elevated Railway.

The state Legislature of 1915, after prolonged consideration, passed for the second time an amendment to the constitution relating to city loans, the purpose of which was to enlarge the borrowing capacity of the city for transit and port development. This amendment (shown as appendix J) was adopted by a vote of the people at the general election on November 2nd. Thus has been consummated the last remaining legislative action desired for the furtherance of this movement.

On December 7th and 14th bids were received for about 8 per cent. additional of the foundations and steep superstructure for the Frankford Elevated Railway.

On November 18th the director transmitted to your Honor a request that Councils call an election to authorize a loan of \$50,000,900, to be used for the completion of the rapid transit system which has been designed and recommended by the department.

Since the appointment of the transit commissioner on May 27th, 1912, the city's transportation needs have been determined with the greatest care and skill at our command, and a definite program for the construction of definite lines of railway has been evolved. The constitution and laws of the state have been amended as recommended by the transit commissioner, clothing the city with legal authority, financial ability and executive machinery necessary to establish a complete high-speed railway system. By these laws and amendments the city's borrowing capacity has been increased by over \$100,000,000, applicable to transit development upon most advantageous terms. Under these laws the Department of City Transit has been organized and detail plans for the entire system are well under way. Two of the more important lines are under construction.





The department has discussed at length and actually reached a tentative arrangement with officials of the Philadelphia Rapid Transit Company for the equipment and operation of any and all rapid transit lines which may be built by the city. Forms, drawn in detail and embodying the provisions of this arrangement, have been prepared by the department. These forms, which are subject to legal adjustment, appear as appendix Q of this report. This arrangement for equipment and operation has not been closed.

It now remains only to push the construction work to completion in as rapid and efficient a manner as possible, and to close, preferably with the Philadelphia Rapid Transit Company or with an independent company, a contract or lease for the equipment and operation of the lines as constructed.

The report of the department in detail for 1915 follows:

#### General Statement of Contracts Let and Work Performed.

The year 1915 witnessed the adoption by Councils of the project of transit development and the beginning of actual work on the subway and elevated system. On January 25th the sum of \$500,000 was appropriated for reconstruction and relocation of sewers in and near the central business district, as required to make way for and to provide drainage principally for the recommended delivery loop. Under this appropriation six contracts were let, covering about 6961 feet of sewers. This work was begun with appropriate ceremonies on March 20th, in which his Honor Mayor Blankenburg participated, and all but a small portion was completed within the year.

In March Councils called an election for the purpose of authorizing an increase in the city's debt in the amount of \$6,000,000, to be devoted to the construction of the Broad Street Subway and the Frankford Elevated Railway. The vote being affirmative, after the election, which was held on April 29th, Councils early in July appropriated \$3,000,000 to the Broad Street Subway and \$3,000,000 to the Frankford Elevated Railway, authorizing and directing the department to construct a section of the Broad Street Subway under and near City Hall, and that part of the Frankford Elevated Line between Callowhill Street and Rhawn Street.

On August 19th the department awarded the contract for the City Hall section of the Broad Street Subway to the Keystone State Construction Company, and work was begun with appropriate ceremonies, in which his Honor the Mayor participated, on September 11th. This work is in full swing.

On August 19th the department awarded the contract to James D. Dorney, for the foundations of the Frankford-Elevated between Callowhill Street and Unity Street.

The steel superstructure for this portion of the Frankford Elevated was placed under contract on October 19th and 26th with the McClintic-Marshall Company. On December 31st the foundation work was



36 per cent. completed, and shop work on the steel structure was in progress.

On December 7th bids were received for foundations for the Frankford Elevated Railway for the section in Frankford Avenue from Unity Street to Dyre Street, and on December 14th for the steel superstructure for the same section.

On February 4th Councils passed the following resolution:

Of request to the Director of the Department of City Transit for certain information, relative to the construction of subway, elevated and surface lines.

Whereas, The question of increased transit facilities is a growing issue in the City of Philadelphia, the demand for which must be met in the broadest and most liberal manner; and

Whereas, The Director of the Department of City Transit has for the past year-and-a-half made a conscientious comprehensive study of the present needs; and

Whereas, It is of vital importance that Councils and the general public should be definitely informed of the routes, plans and other steps contemplated, with the estimated cost thereof, so that full information may be available to the end that when completed the best results may be produced for the whole city, as well as the comfort and welfare of our people; therefor

Resolved, By the Select and Common Councils of the City of Philadelphia, That the Director of the Department of City Transit be requested to present to Councils, if possible at the next meeting a complete list and full description of the subway, elevated and surface lines contemplated to be constructed under the plans suggested by him, with a statement of the probable cost of each, the estimated amount of revenue which can be reasonably expected from the leasing or operation of each line, together with the order in which they should be undertaken, with the probable date of the beginning of each such line, so that Councils and the general public may have the fullest information on the subject, and that proper provision can be made for the necessary interest and sinking fund charges to carry any loans that may be required to construct the said lines.

In response to this resolution a special report on rapid transit development for Philadelphia was submitted to Councils by the director under date of February 11th.

SPECIAL REPORT TO COUNCILS ON RAPID TRANSIT  
DEVELOPMENT FOR PHILADELPHIA.

Philadelphia, February 11, 1915.  
To the Select and Common Councils of the City of Philadelphia.





A special report is herewith submitted to your Honorable Bodies in pursuance of the terms of the following resolution adopted February 4, 1915:

RESOLUTION

OF REQUEST TO THE DIRECTOR OF THE DEPARTMENT OF CITY TRANSIT FOR CERTAIN INFORMATION, RELATIVE TO THE CONSTRUCTION OF SUBWAY, ELEVATED AND SURFACE LINES.

Whereas, The question of increased transit facilities is a growing issue in the city of Philadelphia, the demand for which must be met in the broadest and most liberal manner; and

Whereas, The Director of the Department of City Transit has for the past year and a half made a conscientious comprehensive study of the present needs; and

Whereas, It is of vital importance that Councils and the general public should be definitely informed of the routes, plans and other steps contemplated, with the estimated cost thereof, so that full information may be available, to the end that when completed the best results may be produced for the whole city, as well as the comfort and welfare of our people, therefore

Resolved, By the Select and Common Councils of the City of Philadelphia, That the Director of the Department of City Transit be requested to present to Councils, if possible at the next meeting, a complete list and full description of the subway, elevated and surface lines contemplated to be constructed under the plans suggested by him, with a statement of the probable cost of each, the estimated amount of revenue which can be reasonably expected from the leasing or operation of each line, together with the order in which they should be undertaken, with the probable date of the beginning of each such line, so that Councils and the general public may have the fullest information on the subject, and that proper provision can be made for the necessary interest and sinking fund charges to carry any loans that may be required to construct the said lines.

The following is a complete list of the subway, elevated and surface lines contemplated to be constructed under plans recommended by the Department of City Transit, together with the cost of each. These lines are shown on Map No. 90, 1914 Annual Report.

Broad Street Subway, Branches and Delivery Loop.

A four-track subway in North Broad Street from Race to a point near Pike Street, there dividing into two two-track lines, one turning northeastwardly into McFerran Street, there coming out from subway onto elevated structure, thence eastwardly in Luzerne Street to a point near Ninth Street, thence northwardly in the easterly side of Hunting Park along Ninth Street to the northeast Boulevard, thence northeastwardly in the Northeast Boulevard to Rising Sun Avenue. The second branch above Pike Street was originally designed to turn northwestwardly and come out from subway onto elevated structure in private right-of-way, thence extending to Sixteenth Street, thence northwardly and northwestwardly in Sixteenth Street, Belfield Avenue and Ogontz



Avenue to Olney Avenue.

A two-track subway in South Broad Street from Spruce Street to a point near Bigler Street, thence southwardly in the south Broad Street Boulevard below the street level and preferably uncovered except at cross streets to a point near the entrance to League Island Navy Yard.

A Subway Delivery Loop connecting the North Broad Street and South Broad Street lines and providing delivery facilities for the traffic of these lines in the central business district, located in and adjacent to Broad Street from Race Street to Spruce Street and in and adjacent to Arch Street from Broad Street to Eighth Street, in and adjacent to Eighth Street from Arch Street to Locust Street, and in and adjacent to Locust Street from Eighth Street to Broad Street.

The Broad Street side of the Delivery Loop should contain four tracks from a point near Filbert Street to a point near Locust Street two tracks being designed to connect with and accommodate a two-track subway to be built under the Parkway in the future. The remainder of the Delivery Loop should have two tracks with connections at and near Broad and Arch Streets and at and near Broad and Locust Streets to permit all desirable routing combinations without grade crossings which might restrict train movements or might become points of danger.

The two inside tracks in North Broad Street should be used for express train service.

The southerly portion of the four-track line in North Broad Street is designed to be located so as to permit the construction of two additional tracks under that section of North Broad Street for railroad service, upon the assumption that it will be advisable for certain of the Pennsylvania Railroad trains to be through-routed by such a route in the future, as much added capacity can thus be gained over that of the present stubend terminal at Broad Street Station.

Any additional expense involved in this provision will be charged to the Pennsylvania Railroad Company in connection with the granting of any right-of-way ordinance.

The total estimated cost of the Broad Street Lines with elevated branches and the Delivery Loop, as above described, ready for the installation of operating equipment, is \$36,432,000, including interest during construction and necessary real estate or easements. Of this amount, about \$1,750,000 is chargeable to the provision, if made, for the accommodation of the future subway under the Parkway.

The purpose of the recommendation that the Broad Street Line be divided above Pike Street, and that the branches be carried on elevated structures, is principally that much more territory and many more people can be directly served thereby than by a single subway line in Broad Street, the cost of the two elevated branches being about the same as that of a two-track subway in Broad Street from Pike Street to Olney Avenue.

A careful study is being made with relation to the ex-





tension of the Broad Street Subway to Logan, there turning northwestwardly to an elevated structure in order to enable direct service to be provided for Germantown and Ogontz and Olney Avenues.

The excess cost of this alternate route to Olney Avenue over that of the first recommended route is estimated to be 1,898,000.

#### Frankford Line.

A two-track elevated railway beginning at a point of connection with the present Market Street Subway-Elevated tracks near Front and Arch Streets, thence northwardly in and adjacent to Front Street to Kensington Avenue, thence northeastwardly in Kensington Avenue to Frankford Avenue, thence in Frankford Avenue to Bridge Street, Frankford.

The estimated cost of the Frankford Elevated Line, as above described and recommended, ready for the installation of the operating equipment, is \$6,510,000, including interest during construction and the necessary real estate or easements.

#### Darby Line.

A two-track elevated railway, beginning at a point of connection with the Market Street Subway-Elevated tracks near Thirtieth and Market Streets, thence southwardly in Thirtieth Street and across the Philadelphia, Baltimore and Washington Railroad Yard to a point near South Street, thence on private right-of-way along the westerly side of the right-of-way of the Philadelphia, Baltimore and Washington Railroad, to the line of Paschall Avenue, thence across the Central Division of the Philadelphia, Baltimore and Washington Railroad, and in Paschall Avenue to Grays Ferry Avenue, thence in Grays Ferry Avenue to Woodland Avenue, thence southwestwardly in Woodland Avenue and Main Street, Darby, to a point near the Baltimore and Ohio Railroad, thence on private right-of-way along the Baltimore and Ohio Railroad, and the southerly bank of Darby Creek, to the Chester Turnpike.

The estimated cost of the Darby Elevated Line, as above described and recommended, ready for the installation of the operating equipment, is \$4,390,000, including interest during construction and necessary real estate or easements.

#### Chestnut Street Subway.

In case of failure of the Philadelphia Rapid Transit Company and the Union Traction Company to accept the arrangement for equipping and operating the subway and elevated lines built by the city, I recommend that the city build a subway in and adjacent to Chestnut Street, connecting with the recommended Frankford Elevated Line in Front Street, and connecting with the recommended Darby Elevated Line near Thirtieth and Chestnut Streets by way of a portal west of Twenty-fourth Street, a bridge over the Schuylkill River and the necessary elevated structure west of the Schuylkill River.

The estimated cost of the Chestnut Street Subway with connections, as above described and recommended, ready for the installation



of the operating equipment, is \$8,420,000, including interest during construction and the necessary real estate or easements.

#### Camden Tube.

As provided in the arrangement for equipping and operating the city-built lines made between this department and officials of the Philadelphia Rapid Transit Company, I recommend, in the event of consummation of the said arrangement, that a franchise be granted for and that the Philadelphia Rapid Transit Company be required to build, at its own expense, a tube under the Delaware River from a connection with the present Market Street Subway near Fourth Street to Camden. The Company should be allowed to charge three cents for the transportation of passengers in this tube, but trains therein should be through-routed in the Market Street Subway.

If the said arrangement for equipping and operating the city-built lines be not consummated, I recommend that the independent operator secured by the city be required to build the Camden Tube but connecting with the Chestnut Street Subway instead of the Market Street Subway.

#### Parkway - Twenty-Ninth Street - Roxborough Line.

I recommend that the construction of the following line be planned for as soon as delivery facilities are available.

A two-track subway under the Parkway from the connection with the Delivery Loop already described to a point near the line of North Twenty-Ninth Street, thence coming out onto elevated structure in North Twenty-Ninth Street, northwardly to a point beyond Allegheny Avenue, thence in and adjacent to Henry Avenue to Ridge Avenue and Hermit Street, thence in Ridge Avenue to Parker Avenue, Roxborough.

The estimated cost of construction of this line complete, ready for the installation of the operating equipment, is \$9,100,000, including interest during construction and real estate or easements, and including the construction provided for this line on the west side of the Delivery Loop, costing about \$1,750,000.

#### Order of Construction and Estimated Time of Completion.

I recommend that the construction of the Delivery Loop be begun this year as early as possible and that the construction of the Broad Street Subway with branches be begun in the spring of 1916. I estimate that, so begun, the Broad Street Subway, complete with branches and Delivery Loop, should be finished, ready for operation, before December 31, 1918.

I recommend that the construction of the Frankford and Darby Elevated Lines be begun immediately after the consummation of the hereinafter recommended arrangement with the Philadelphia Rapid Transit Company for the equipment and operation of subway and elevated lines built by the city. If the Philadelphia Rapid Transit Company and





the Union Traction Company shall fail to accept this arrangement without undue delay, I recommend that the construction of the Chestnut Street Subway be begun as soon as possible and that the construction of the Frankford and Darby Elevated Lines, with connections to the Chestnut Street Subway, be begun six months thereafter. The construction of the Chestnut Street Subway will require two and one-half years and that of the recommended elevated lines two years.

The installation of the equipment can be begun in all cases before the construction is finished, and operation should be begun within from three to six months after the completion of the city's structures.

It is important that all the recommended lines be constructed and placed in operation as nearly at the same time as possible because of the volume of interline traffic and because they connect and serve all important sections of the city for one 5-cent fare. If one of the recommended lines be built without the others, its earnings will be curtailed by the amount of inter-line traffic and it will only partially serve and benefit to a limited extent a single section of the city, by connecting that section with the central business district only.

#### Financial Results of Operation

If the city shall build and lease the lines as recommended to the Philadelphia Rapid Transit Company under the terms of the arrangement made between the Department of City Transit and officials of the Company designated as "A Program for Transit Development with Free Transfers" (see Appendix A) 1914 Annual Report, the financial results to the city of the operation of the various recommended lines and of all together have been accurately estimated for each year from the beginning of operation to and including the year to June 30, 1930, and are shown in statements comprising Appendix B, 1914 Annual Report.

If, by reason of inaction on the part of the Philadelphia Rapid Transit Company and the Union Traction Company, the city shall be forced to establish an independent competitive system to be equipped and operated by a company independent of the said companies, and making no joint rate or transfer agreement with the existing lines, the financial results to the city of the operation of the various recommended lines and of all together have been estimated for each year from the beginning of operation to and including the year to June 30, 1930, and are shown in statements comprising Appendix B 1914 Annual Report.

If, under such independent operation, joint rates with the existing system are obtained by legislation or otherwise on the basis of two and one-half cents to each company, the corresponding financial results to the city are estimated to be as shown in statements comprising Appendix B, 1914 Annual Report.

Estimated financial results of operation do not take account of interest and sinking fund charges on the cost of the tracks and connections provided on the west side of the Delivery Loop for a future subway in the Parkway.





All of the estimates herewith submitted have been prepared in great detail and with the greatest care, as described fully in Volume I of the Transit Commissioners' Report. Thus the estimates of cost of construction and of operation are ample and the estimates of traffic and earnings are conservative.

#### Arrangement or Program for Equipment and Operation.

As reported to you under date of May 27, 1914, I reached an arrangement, after extended negotiations with the officials of the Philadelphia Rapid Transit Company under the terms of which that Company would equip and operate the subway and elevated lines as above recommended, and any other lines which the city might decide to build in the future. A copy of this arrangement is herewith attached. (See Appendix A, 1914 Annual Report.)

Embraced in this arrangement was a plan for the elimination of the 8-cent exchange system and for the establishment of a universal free transfer system together with certain modifications of the Contract of 1907 between the city and the company.

This arrangement on the part of the Philadelphia Rapid Transit Company was made contingent upon co-operation of the Union Traction Company and the officials of the Philadelphia Rapid Transit Company, parties to the arrangement, agreed to use their best efforts to secure the confirmation of the arrangement by their company and by the Union Traction Company.

Up to the present time, however, no such confirmation has been given.

The fact that the highest officials of the Philadelphia Rapid Transit Company made this arrangement after a long negotiation and discussion is prima facie evidence that the terms thereof are fair in the premises to the existing street railway interests.

Appreciating the desirability of full co-operation between the city and the existing company in any transit development, I unhesitatingly and emphatically recommend this arrangement to your Honorable Bodies.

Under the terms of the arrangement, the exchange ticket system would be entirely abolished by January 1, 1920. The concessions on the part of the city are:

1. The abatement for six years of the tax on dividends above 6 percent., which amounts to \$115,579 per year.
2. The abatement for ten years of the payments under the 1907 Contract to the special city sinking fund created for the purchase by the City of the capital stock of the Philadelphia Rapid Transit Company at the expiration of the 1907 Contract.

The recommended arrangement would thus by this provision relieve the people of Philadelphia at a very early date of the 8-cent fare system, which is not tolerated in any other city of importance in America, and which is grossly discriminatory in its application.





If the recommended arrangement does not receive the endorsement of the Philadelphia Rapid Transit Company and the Union Traction Company I recommend that your Honorable Bodies take steps immediately to procure the abolishment of this discriminatory 8-cent exchange system by due process of law.

The arrangement would further bind the Philadelphia Rapid Transit Company to build or provide extensions to its surface system when and as required by the development of the city. At present, although the company has a practical monopoly of the streets, the city itself is without power to require the company to make extensions. Thus the company may refuse to give service to any newly developed locality, and may practically prevent anyone else from doing so.

In preparation for the contingency or failure on the part of the companies to confirm the arrangement, a bill is being prepared for enactment by the legislature to place the city in a position to require through operation on connecting lines of the existing company of cars operated on such new surface lines or extensions which may be built by the city.

In such event, I shall recommend that when this legislation is enacted your Honorable Bodies look forward to the construction of lines in particular:

- On Ninth Street, from Northeast Boulevard to Olney Avenue
- On Fifth Street from Olney Avenue to Oak Lane.
- On Chew Street, from Cheltenham Avenue to Mt. Airy Avenue.
- On Stenton Avenue, from Cresheim Avenue to Chew Street
- On Walnut Lane, from Ridge Avenue, Roxborough to Cliveden Street to Wayne Avenue.
- On Fifty-sixth Street, from Lancaster Avenue to Baltimore Avenue to Fifty-fifth Street, to Fifty-sixth Street to Woodland Avenue.
- On Forty-sixth Street, from Lancaster Avenue to Woodland Avenue.
- A line over Henry Avenue and Rochelle Avenue from Allegheny Avenue to Roxborough.
- On Sixty-fifth Street, from Kingsessing Street to Woodland Avenue
- On Sixty-third Street, from Woodland Avenue to Passyunk Avenue
- On Erie Avenue, from Sixteenth Street to Seventeenth Street, and from Nineteenth Street to Hunting Park Avenue, also on Erie Avenue from Second Street to Torresdale Avenue, thence to Kensington Avenue.
- On Cayuga Street, from Germantown Avenue to Northeast Boulevard, thence to Ninth Street.
- A re-arrangement of the lines on Fortieth Street.
- The extension southwardly of all the north and south lines serving South Philadelphia.
- A cross-town line on Oregon Avenue in South Philadelphia.
- Special provision is being studied for the requirements of the thirty-fifth Ward.

Bills are being prepared which, if enacted, will require the use of the present Market Street Subway-Elevated Line for the through routing of trains between the Frankford and Darby Elevated Lines.

I point out to your Honorable Bodies the fairness of the provisions contained in the recommended arrangement for a preferential payment to



the company out of the net earnings of the city-owned lines, providing adequate protection to the company against diversion of net income to the city-owned lines.

If the companies shall fail to accord to the city their full co-operation in the establishment of the city's subway and elevated system, they will forfeit the good will of the city and the ensuing loss of business and revenue to the existing system will necessarily result finally in a joint traffic or operating arrangement which will be satisfactory to the city.

As reported by the city controller under date of December 31, 1914 the borrowing power of the city for transit facilities and other like public improvements was then \$40,781,752.74.

The total cost of the Broad Street Subway and Delivery Loop and the Frankford and Darby Elevated Lines to be built by the city and recommended herein is estimated to be approximately \$46,000,000 not including the construction on the west side of the Delivery Loop, necessary for the Parkway Line, which would cost about \$1,750,000 additional.

Under the present provisions of the State Constitution the annual interest and sinking fund charges on this amount would be \$2,990,000.

In expectation of the constitutional amendment now under way becoming operative with relation to loans made after January 1, 1916, the city at the beginning of construction this year need raise only the funds required before that date. At least \$6,000,000 should be appropriated for this period as a basis of making contracts, and as the sinking fund charges on the remainder of the cost of construction will be greatly reduced, the average annual charges on the total cost will be about \$2,390,000. The work could be placed under contract and payments could be made as shown in Appendix "B", 1914 Annual Report.

In addition to the direct income from the city-owned lines, the city and its citizens will obtain the following collateral benefits which will vastly more than offset any deficit in interest and sinking fund charges in any year:

1. The increase in real estate taxes, due to the abnormal increase in values created by the high-speed transportation facilities, amounting to upwards of \$1,000,000 per year.
2. The abolition of the exchange ticket system, amounting to \$800,000 and upwards per year.
3. The value of time saved the people by the high speed service at 15 cents per hour, or \$1,911,000 and upwards per year.
4. The 1-mill personal property tax remitted by the state to the city as a practical subsidy in aid of rapid transit, the amount of which will be dependent upon the enactment of the amendment to the Personal Property Tax Act.







### Summary

Summing up, the city has, according to the City Controller's Report, unrestricted borrowing capacity in the amount of \$7,072,665.46 and the borrowing capacity gained through the Personal Property Tax Act in the amount of \$40,781,752.74 which is also unrestricted, excepting that it must be utilized for transit development or other permanent improvements. If an increase in the city's indebtedness be made in the amount of \$6,000,000 at a special election and this \$6,000,000 be borrowed under such authority during 1915 for transit development, the city will have remaining for other purposes the present unrestricted borrowing capacity of 7,072,665.46 plus the unused portion of the 40,781,752.74 viz. \$34,781,752.74 or a total of \$41,854,418.20 which will be available for any permanent improvements. After the constitutional amendment is adopted in November, all of the money for transit development, excepting the \$6,000,000 if provided for construction in 1915, can be borrowed without encroaching upon any of the present borrowing capacity of the city, for the constitutional amendment will provide additional borrowing capacity of three per cent, for transit and port development. This will amount to over \$67,000,000.

Thus the city, as stated, will still have remaining and available for purposes other than transit and port development borrowing capacity of \$41,854,418.20 plus annual additional thereto resultant from the normal increase in value of taxable property and from the operation of the sinking fund.

With the adoption of the constitutional amendment, the borrowing capacity of the city will be increased by 3 mills on the amount of the assessed valuation of taxable real estate and taxable personal property. This increase will amount to upwards of \$67,000,000. This amendment will bring many broad and essential advantages to the city,, as set forth on pages, 10 and 11 of the 1914 Annual Report.

I request that the Finance Committee report out the ordinances providing for the holding of special election to authorize an increase in the city's indebtedness to the extent of at least \$6,000,000 to provide money for the beginning of the transit development and that the ordinances be passed by Councils without delay in order that the election may be held and that \$6,000,000 may be appropriated and the designating ordinances passed before the summer adjournment so that actual construction on the high-speed lines can be commenced on July 1, 1915. It will not be necessary to float more than \$6,000,000 of the transit loan until after the constitutional amendment has been voted on by the people in November and the terms thereof will thus be made applicable to the balance of the transit loan to be floats.

Respectfully submitted,

(Signed) A.M.Taylor  
Director, Department of City Transit.



On February 15th the Joint Sub-Committee of Councils' Committee on Finance reported favorably on a transit loan for \$6,000,000, and on February 18th the following ordinance, providing for an election to authorize such an increase in the city's indebtedness, was reported upon favorably by the Finance Committee of Councils:

" AN ORDINANCE

Signifying the desire of the corporate authorities of the City of Philadelphia to increase the indebtedness of the said city in the sum of six million (\$6,000,000) dollars, based on the assessed valuation of taxable personal property in said city, toward the construction of a subway railway in Broad Street, from League Island to Olney Avenue, with the necessary branch lines northeast and northwest from Broad Street, and the construction of an elevated railway, from Front and Arch Streets to Rhawn Street; and to authorize and provide for submitting to the vote of the electors the question of increasing the said indebtedness in the sum of six million (\$6,000,000) dollars, fixing a day for holding an election for the purpose of obtaining the assent of the electors to said increase, and authorizing the Mayor to give notice of such election; and to make an appropriation to pay the expense for holding said election.

Section 1. The Select and Common Councils of the City of Philadelphia do ordain, That it is the desire of the corporate authorities of the City of Philadelphia, which desire is hereby signified, that the indebtedness of the said city shall be increased in the sum of six million (\$6,000,000) dollars, based on the assessed valuation of taxable personal property in said city, toward the construction of a subway railway in Broad Street from League Island to Olney Avenue, with the necessary branch lines northeast and northwest from Broad Street, and the construction of an elevated railway, from Front and Arch Streets to Rhawn Street via Front Street, Kensington Avenue and Frankford Avenue to Rhawn Street.

Section 2. That for the purpose of obtaining the assent of the electors to the said increase of indebtedness in the sum of six million (\$6,000,000) dollars for the purpose designated in Section 1, an election shall be held on Thursday, the twenty-ninth day of April, 1915, between the hours of 7 A.M. and 7 P.M., at the usual places for holding elections; that notice of said election shall be given by the Mayor of the municipality by weekly advertisements in not exceeding three newspapers of the said city during at least thirty days prior to the said election, which notice shall contain a statement of the amount of the last assessed valuation of the taxable property of the said city, the amount of the existing debt, the amount and percentage of the proposed increase, and the purposes for which the indebtedness is to be increased, and the City Commissioners





are hereby authorized and directed to prepare and distribute the necessary ballots, ballot boxes and other articles, and to take such other action as may be required for the holding of such election, as provided for in the laws of the State of Pennsylvania governing the increase of indebtedness of municipalities and the holding of elections therefor.

Section 3. That the sum of one hundred thousand (\$100,000) dollars be, and the same is hereby appropriated to Item 34 in the annual appropriation to the City Commissioners, for the year 1915, to pay the expenses of holding the election authorized in Section 2."

In this ordinance no provision was made for the "Woodland Avenue (Darby) Line, recommended by the director, or for the delivery loop which is so essential to proper service on the Broad Street line. The ordinance, however, extends the Frankford line three miles beyond the terminus at Bridge Street, Frankford, recommended by the director for the present undertaking.

The ordinance specified that the increased indebtedness be "based on the assessed valuation of taxable personal property." This phrase would have invalidated the election according to the opinion of John G. Johnson, Esq., which was solicited by the department and follows in full:

"2nd March, 1915.

A. Merritt Taylor, Esq.,  
Director, Department of City Transit.

Dear Mr. Taylor:

I beg to acknowledge the receipt of yours of the 1st inst. The Ordinance which, a few days ago, you submitted to me, was undoubtedly drafted in view of the Act of twenty-first July, 1913 (P. L. 808); but I thought, and still think, that it would be most injudicious to obtain a popular vote in favor of the loan, based on the assessed valuation of personal property instead of upon the total assessed valuation of real and personal property.

Wherever a loan is made, which represents a percentage in excess of that which could be created if based solely on the valuation of real estate, the loan in excess must be treated as is provided in the said act.

I do not think, however, it is other than dangerous to word the ordinance as was suggested.

It is far safer to obtain consent to the loan, to an extent which represents the legal percentage based upon the assessed valuation of taxable property, using money, when obtained, within the limitations of said act.

Very truly yours,

(Signed) John G. Johnson."



The director, therefore, protested against the passage of the ordinance as reported. This protest resulted in a mass meeting of citizens held at the Academy of Music on February 24th and in many remonstrances to city Councils from citizens and organizations.

On March 4th the ordinance was passed (as shown in appendix B) with the words "based on assessed valuation of taxable personal property in said city" stricken out and the words "to be used" inserted in lieu thereof, this change having, in the director's opinion, relieved the ordinance of legal objections which would have been fatal to it. The director of the department, although he strongly disapproved of the departures, from his recommendations as to routes, realized that these departures were mainly of a temporary nature and that a knowledge of the necessities of operating and traffic conditions will require necessary changes to be made before it is too late to make them. Therefore, in order to have the city take such a step as would unconditionally commit the city to transit development and the prompt construction of the lines, he recommended under date of March 6th that the mayor sign the ordinance as passed. The mayor thereupon signed the ordinance on March 8th, his action meeting with general public approval.

The election was duly advertised according to law, and the result of the vote at the special election, held on April 29th, in accordance with the ordinance, was as follows:

In favor of loan .....	84,848
Opposed to loan .....	9,119

On May 6th an ordinance creating the loan of \$6,000,000 was introduced in Councils, but was not finally passed and approved by the mayor until June 30th. This ordinance is given in full in appendix "B".

On July 1st Councils passed, and on July 2nd the mayor approved,

An ordinance authorizing the Department of City Transit to construct a portion of the subway railway to be established in Broad Street between League Island and Olney Avenue, and

An ordinance authorizing the Department of City Transit to construct a portion of the elevated railway to be established from Front and Arch Streets to Rhawn Street.

These ordinances are given in full in appendix "A".

On September 11 the director in a letter to the mayor, an excerpt from which follows, recommended that a vote be taken at the regular November election on an increase in the city's indebtedness in the amount of \$1,250,000 for transit construction:

I have the honor to recommend that an increase in the city's indebtedness in the amount of \$1,250,000 be authorized





at the forthcoming election to be used toward the construction of the Frankford Elevated Line and other transit facilities as defined by the act of June 17, 1913, P.L. 336, in order that an unwarranted and wasteful delay in construction may be avoided.

If this proposition meets with your approval, will you please communicate the fact to city Councils and request that the necessary ordinances be introduced and passed to carry the same into effect.

I would suggest that the ordinances, if introduced, be passed upon, as to terms and form, by the city solicitor.

This increased borrowing should be made clearly available for the acquisition of real estate and real estate easements and for salaries and expenses incident to the work.

I do not think we would be justified, from a business standpoint, in awaiting a special election to be held subsequent to the adoption of the proposed amendment to the constitution at the forthcoming election in order to gain the advantages which would be derived thereby, for the amount involved is small by comparison with the advantages which will be gained for the citizens by prompt action, and by comparison with the amount which will be required for the construction of the Broad Street Subway, which should necessarily be financed upon the advantageous terms provided by the proposed constitutional amendment.

The mayor made a request of Councils for action in accordance with this recommendation, but no action was taken.

On October 5th the director suggested to the mayor, in a letter, an excerpt from which follows, that ordinances be introduced transferring \$900,000 from the appropriation to the City Hall section of the Broad Street Subway to the Frankford Elevated construction:

I attach hereto drafts of ordinances, in duplicate, to amend ordinances approved July 2, 1915, authorizing the Department of City Transit to construct portions of the subway railway to be established in Broad Street between League Island and Olney Avenue, and of the elevated railway to be established from Front and Arch Streets to Rhawn Street.

The purpose of these amendments is to transfer the sum of \$900,000 from the allotment of \$3,000,000 for the construction of the City Hall Station section of the Broad Street Subway, and to make this sum available for the construction of the Frankford Elevated Railway in addition to the \$3,000,000 already set aside for that work, in order that the entire appropriation may be immediately applied to the greatest advantage to avoid unwarranted and wasteful delay in construction. The sum of \$2,100,000 which is being reserved for the construction of the City Hall Station section of the Broad Street Subway should be more than ample for that



purpose.

I suggest that these ordinances be introduced at the next meeting of City Councils.

These ordinances are given in full in appendix "H".

As soon as it was determined that the vote had been favorable at the general election on the constitutional amendment relating to city loans, which is hereinafter discussed at length, the director prepared a form of ordinance calling an election for the purpose of increasing the city's indebtedness in the sum of \$50,000,000, to be used toward transit development. This form of ordinance follows, together with a letter to the mayor urging the adoption of the ordinance and explaining the reasons and necessity for the loan.

November 18, 1915.

Hon. Rudolph Blankenburg,  
Mayor of Philadelphia,  
City Hall, Philadelphia.

My dear Sir:

Amendment of section 8, article 9, of the state constitution, adopted at the recent election, makes available to the city, upon favorable terms, additional borrowing capacity of \$68,700,000 for transit and port development in addition to a borrowing capacity of \$44,567,027,27 available for other purposes.

The aforesaid amendment authorizes the city in utilizing the increased borrowing capacity:

to issue 50-year bonds instead of 30-year bonds, as heretofore, thus reducing the average annual sinking fund charge from 2 1/4 to 1 per cent.,

to establish graded sinking fund payments, and

to capitalize and to pay out of loan funds all interest and sinking fund payments which accrue during construction and the first year of operation.

Thus the city has been clothed with the necessary financial ability to proceed with the construction of a comprehensive transit system, and to complete the construction of each line and to have the same operated for one year before any interest or sinking fund charges become a charge against the city's current income from taxation.

As the original carefully detailed estimates of the department were made, and stated to be very full in order to avoid possibilities of being overrun, I am able to report that construction estimates, based upon prices recently bid for construction work, now justify the belief that \$50,000,000, in addition to the \$6,000,000 already appropriated, will construct the rapid transit system as contemplated, including

1. Broad Street Subway, with northeasterly and northwesterly branches, and delivery loop.
2. Frankford Elevated.
3. Woodland Avenue Elevated.
4. Parkway-North Twenty-ninth Street-Henry Avenue Subway-Elevated.





I recommend that a special election be authorized and held at the earliest date practicable for the purpose of authorizing an increase in the city's indebtedness, in broad terms, for transit development, in the amount of \$50,000,000.

It is important that city Councils shall have the right to make from time to time any extensions to or changes in routes which may be desirable, and in the remote contingency of it being necessary to authorize the construction of the Chestnut Street Subway as a connecting link between the Woodland Avenue Elevated and the Frankford Elevated Lines, the cost of which would be \$8,500,000.

By calling the special election to vote the broadest possible authority to city Councils to borrow \$50,000,000 for transit development, without specifying any details, city Councils will be in a position to direct the design and construction of a city-owned high-speed system, preferably in a manner suited to operation as a part of the existing system operated by the Philadelphia Rapid Transit Company, or, in the remote contingency of failure on the part of the city to conclude proper arrangements with and through the Philadelphia Rapid Transit Company for the equipment and operation of the city-owned, high-speed lines, city Councils would be in possession of the necessary authority (to be used as a last resort if necessary) to direct their design and construction in a manner which would permit of the equipment and operation of these lines by an independent company.

If these suggestions be carried out, there is no question whatever but what Philadelphia will secure to itself the broad advantages of a complete high-speed system, equipped and operated by the existing company under an equitable contract which will give the traveling public the best possible service and protect the company against loss arising from the diversion of traffic from its present system to city-owned lines.

In matters involving such important negotiations, the city's representatives should possess and retain the broad authority and freedom of action essential to the successful consummation of the important contract for the equipment and operation of the lines in a manner which is just to all parties in interest. They should also be in a position to acquire the necessary real estate and real estate easements for recommended and future high-speed lines before the value thereof be increased by constructive developments.

I enclose herewith duplicate drafts of an ordinance prepared by Michael J. Ryan, Esq., City Solicitor, at my request, entitled, "An ordinance signifying the desire of the corporate authorities of the city of Philadelphia to increase the indebtedness of the said city in the sum of fifty million (\$50,000,000) dollars for the construction and improvement of subways, tunnels, railways, elevated railways and other transit facilities; and to authorize and provide for submitting to the vote of the electors



the question of increasing the said indebtedness in the said sum; fixing a day for holding an election for the purpose of obtaining the assent of the electors to such increase; authorizing the mayor to give notice of such election and making an appropriation for the expenses thereof."

You will note that the wording of this ordinance is based upon the wording of the constitutional amendment voted on at the election of November 2nd, the terms of which must be applicable to future transit loans.

Mr. Ryan advises me that it would be safer not to have this ordinance introduced in Councils until after the official count of the vote on the constitutional amendment is completed and duly certified.

Therefore, I recommend that you have this ordinance introduced in Councils as soon as the vote on the constitutional amendment has been certified.

Yours very truly,

(Signed) A. M. Taylor,  
Director.

The ordinance mentioned in the above letter reads as follows:

#### AN ORDINANCE

Signifying the desire of the corporate authorities of the city of Philadelphia to increase the indebtedness of the said city in the sum of fifty million (\$50,000,000) dollars for the construction and improvement of subways, tunnels, railways, elevated railways and other transit facilities; and to authorize and provide for submitting to the vote of the electors the question of increasing the said indebtedness in the said sum; fixing a day for holding an election for the purpose of obtaining the assent of the electors to such increase; authorizing the mayor to give notice of such election and making an appropriation for the expenses thereof.

Section 1. The Select and Common Councils of the City of Philadelphia do ordain, That it is the desire of the corporate authorities of the city of Philadelphia, which desire is hereby signified, that the indebtedness of the said city shall be increased in the sum of fifty million (\$50,000,000) dollars for the following purposes, to wit; for the construction and improvement of subways, tunnels, railways, elevated railways and other transit facilities.

Section 2. That for the purpose of obtaining the assent of the electors to the said increase of indebtedness in the sum of fifty million (\$50,000,000) dollars, as designated in Section one, an election shall be held at the usual places of holding elections on the day of 1916, between the hours of 7 A.M. and 7 P.M.; that notice of said election shall be given by the mayor of the city by weekly advertisements in not









ninety million (90,000,000) dollars for the following purposes to wit; For the construction of a subway in Broad Street, from League Island to Olney Avenue, with the necessary branch lines northeast and northwest from Broad Street, and the construction of an elevated railway from Front and Arch Streets to Rhawn Street, via Front Street, Kensington Avenue and Frankford Avenue to Rhawn Street, and the construction of such other subway and elevated railways as shall be authorized by Councils, forty-five million (45,000,000) dollars; harbor improvements, including the construction of piers, etc., eight million (8,000,000) dollars; removal of grade crossings in South Philadelphia, as per contract dated March 23, 1914, five million (5,000,000) dollars; removal of grade crossings, one million (1,000,000) dollars; payment of mandamuses, two million (2,000,000) dollars; acquisition of property and improvement of the Parkway, two million (2,000,000) dollars; construction of main sewers, two million (2,000,000) dollars; construction of branch sewers, one million (1,000,000) dollars; construction of bridges, one million (1,000,000) dollars; acquisition of property and construction of sewage disposal plants, two million (2,000,000) dollars; repaving streets, one million two hundred and fifty thousand (1,250,000) dollars; grading streets, one million (1,000,000) dollars; improvement of country roads, seven hundred and fifty thousand (750,000) dollars; paving intersections, five hundred thousand (500,000) dollars; improvement of the following branches of The Boulevard: Bensalem Avenue, from Lexington Avenue to Welsh Road; Holme Avenue, from Welsh Road to Grant Avenue; Poquessing Avenue, from Pennypack Circle to Welsh Road, one million (1,000,000) dollars; improvement of League Island Park, five hundred thousand (500,000) dollars; improvement of the water supply, two million five hundred thousand (2,500,000) dollars; construction of buildings for insane, feeble-minded and female indigent at Byberry, two million (2,000,000) dollars; reorganizing and rebuilding the Philadelphia General Hospital, two million (2,000,000) dollars; erection of an art museum, three million (3,000,000) dollars; toward erection of a library building, one million (1,000,000) dollars; to pay for property heretofore taken for Fairmount Park and the improvement of said park, one million (1,000,000) dollars; acquisition of property and improvement of small parks, seven hundred and fifty thousand (750,000) dollars; acquisition of property and improvement of recreation centres, seven hundred and fifty thousand (750,000) dollars; erection of a convention hall, one million (1,000,000) dollars; construction of buildings for Municipal Court, one million (1,000,000) dollars; acquisition of property, purchase of apparatus, building and improvement of fire and police stations, one million (1,000,000) dollars.

Sect. 2. That for the purposes of obtaining the assent of the electors to the said increase of indebtedness in the sum of ninety million (90,000,000) dollars, as designated in Section 1, an election shall be held at the usual places for holding elections on the eighth day of February, 1916, between the hours of 7 A.M. and 7 P.M.; that notice of said election shall be given by the mayor of the municipality by weekly advertisements in not exceeding three newspapers of the said city during at least thirty days





prior to the said election, which notice shall contain a statement of the amount of the last assessed valuation of the taxable property of said city, the amount of the existing debt, the amount and percentage of the proposed increase, and the purposes for which the indebtedness is to be increased, and the city commissioners are hereby authorized and directed to prepare and distribute the necessary ballots, ballot boxes and other articles, and to take such other action as may be required for the holding of such election, as provided for in the laws of the state of Pennsylvania governing the increase of indebtedness of municipalities and the holding of elections therefor.

The director requested the Finance Committee to raise the amount assigned to transit development from \$15,000,000 to \$50,000,000 and suggested, in addition to the other recommended lines, a high-speed surface line to be built on private right-of-way without grade crossings in the Thirty-fifth Ward, as recommended by the department, which could probably be constructed out of the \$50,000,000 item. The director also requested that the money be made available for real estate assessments, and that the money be made available "toward" the construction of the lines rather than "for" the construction of the lines.

The revised estimates of the cost of construction (not including equipment) of the various lines recommended are as follows:

Individual Estimates of Cost of Construction of  
Lines Recommended.

Broad Street Subway, with delivery loop and branches - construction .....	\$36,700,000
Delivery loop (not including curves at Broad Street) .....	\$5,900,000
Northeast branch (on Boulevard to Rising Sun Avenue) .....	1,500,000
Northwest Branch (Logan to Germantown)	2,100,000
Broad Street, League Island to Olney Avenue (including curves at Locust Street and Arch Street) .....	27,200,000
Broad Street real estate .....	1,000,000
Frankford Elevated-construction .....	5,700,000
Frankford Elevated-real estate .....	600,000
Woodland Avenue Elevated-construction .....	3,200,000
Woodland Avenue Elevated-real estate .....	100,000
Parkway-Roxborough -construction .....	7,500,000
Parkway-Roxborough-real estate .....	100,000
Byberry Line (including track-land assumed to be obtained without cost) .....	<u>1,100,000</u>
Total .....	\$56,000,000

The above includes 20 per cent. added to cover cost of engineering and interest and required sinking fund payments.

Constitutional Amendment Relating to City's Borrowing Capacity.

In the transit commissioner's investigation in 1912-1913 of the legal and financial status of the city with relation to



transit development, the conclusion was reached that the city was unduly hampered by certain constitutional restrictions and limitations. Consequently a joint resolution ( appendix J ) proposing an amendment to section 8, article 9, of the constitution was introduced by Representative Francis S. McIlhenny, and adopted by the Legislature in 1913. As required by law, this joint resolution was introduced by Senator E. H. Vare at the succeeding session in 1915.

While this joint resolution was in the Senate Committee on Municipal Affairs, of which Senator E. H. Vare was chairman, the committee held a public hearing in Common Council Chambers, City Hall, Philadelphia, on February 11, 1915.

On invitation the director of the department stated his reasons for urging this amendment and its vital importance to the city in the transit undertaking. The director's address appears in appendix "I" of this report.

The committee was also addressed by Charles Seger, John P. Connelly, of the Finance Committee of Councils; David H. Lane, Thomas L. Hicks and George H. Earle, Jr. Director George W. Morris, of the Department of Wharves, Docks and Ferries, strongly upheld the importance and advantages of the constitutional amendment.

The Senate Committee on Municipal Affairs reported the joint resolution favorably, it received the active support of the chairman of that committee, and was finally adopted by the Legislature, together with a provision for its submission to the vote of the people at the general election on November 2, 1915.

At this election the amendment was adopted by the following vote:

For amendment .....	360,449
Opposed to amendment .....	189,687

The main particulars in which this amendment furthers the city's undertakings in establishing transit and port facilities are embodied in the following provisions:

Increases the borrowing capacity of Philadelphia for the special purposes only of transit and port development by an amount equal to 3 per cent. of the assessed valuation of taxable property.

Based upon city controller's figures of October 1, 1914, of assessed valuation of taxable property in Philadelphia for 1915, this increase in borrowing capacity will be upwards of \$67,000,000.

That when transit and port developments have been acquired or constructed by the City of Philadelphia, and when they have been placed on an income producing basis, such portion of the bonds issued therefor as are then supported (as to annual interest and sinking fund payments accruing thereon) by annual income produced by the developments may be excluded from the indebtedness of Philadelphia in calculating its borrowing capacity.





This provision will enable this city to recover from time to time such portion of the borrowing capacity so utilized for transit and port development as may then be represented by the par value of bonds outstanding which are sustained as to interest and sinking fund out of the net earnings of the facilities. In order that the terms of this provision may apply it will not be necessary, as it is under the now existing terms of the constitution, for each facility to earn the annual interest and sinking fund payments on bonds representing the total cost thereof. But such portion of the bonds issued therefor as are sustained as to the interest and sinking fund requirements out of the net earnings produced thereby may be excluded from the city's debt in calculating its borrowing capacity.

Enables Philadelphia to issue 50-year bonds for transit and port development instead of 30-year bonds, thereby reducing the annual sinking fund requirements from 2 1/4 per cent. on the par value of bonds issued, to 1 per cent. on the par value of bonds issued.

On a \$50,000,000 issue of bonds this will reduce the annual payments required, in addition to interest, for sinking fund purposes by 1 1/4 per cent.- a saving in such an issue of \$625,000 per year.

It permits graded sinking fund installments on such bonds to be established.

Thus, in the early years the sinking fund payments may be made nominal, increasing annually with the producing capacity of the facilities constructed, so that in the early years of operation the sinking fund charge in addition to interest accruing on the bonds issued therefor will be kept down to a minimum.

It authorizes the capitalization of interest and sinking fund payments accruing on such bonds during the period of construction and during the first year of operation.

Thus Philadelphia will be enabled to finance and construct rapid transit facilities and port improvements, and have the same in complete operation for one year before the interest or sinking fund payments on the bonds issued therefor become a charge against current revenues.

This constitutional amendment will give Philadelphia adequate borrowing capacity for both transit and port developments; will relieve current income from taxation of the interest and sinking fund charges on bonds issued for such developments until after the same are in actual operation and producing income, and will also enable Philadelphia to finance these improvements in an economical manner by reducing the annual sinking fund payments which are required to be made as above stated. It will enable Philadelphia to enlarge its borrowing capacity from time to time automatically as the facilities become partially or entirely self-supporting.

The adoption of this constitutional amendment was the final step necessary to make effective all of the legislation



originally prepared as outlined and requested by the transit commissioner which clothes Philadelphia with the necessary legal authority, financial ability and executive machinery to establish adequate transit facilities.

The other essential legislation was enacted at the session of 1913 and was recited in the transit commissioner's report and in the annual report of the department for 1914.

It consisted of the Personal Property Tax Act, originally introduced by Senator James P. McNichol, and reintroduced at his request in the House by Representative Daniel J. Shern. This act increased the borrowing capacity of the city by upwards of \$40,000,000.

An act authorizing the city of Philadelphia to establish and acquire transit facilities, etc., approved June 17, 1913, introduced by Senator James P. McNichol.

An act establishing a Department of City Transit, approved May 9, 1913, introduced by Senator James P. McNichol.

This important legislation, introduced by Senator James P. McNichol, had his active support.

It is with a feeling of sincere appreciation that I here record certain facts which are not disclosed by the public records.

Throughout the past three and a half years the important legislation which the Legislature and city Councils were called upon to enact by the transit commissioner, and later by the director of the Department of City Transit, to enable Philadelphia to establish adequate transit facilities, constituted a wide departure from previously well-settled policies of this state and of this city.

The legislation drafted and submitted provoked much debate in these legislative bodies, and many differences of opinion existed with relation thereto.

To the wise counsel and untiring efforts of Senator Boies Penrose is due the fact that all of this constructive legislation has been finally enacted; for it is a fact that without his untiring support and deep interest in this matter Philadelphia would not at this time be qualified, either legally or financially, to embark upon the transit development which is now under way.

I here record my personal thanks and the thanks of this department to him for his potent efforts which have made the city's transit development possible.

#### Through-Routing Bill.

In order to improve the city's position to pursue its policy of transit development, the department prepared a bill providing that cars shall be through-routed between railways built and owned by cities of the first class and those built and owned by private corporations within cities of the first class. This right is particularly de-





sirable in the case of the Frankford Elevated Railway, which, as authorized extends from the northeastern part of the city only to Front and Arch Streets. If the city cannot lease this line to the Philadelphia Rapid Transit Company on satisfactory terms, the city will be obliged to build an extension through or into the central business district. The proposed bill would have made it possible to secure a connection and through operation with the Market Street Subway-Elevated line absolutely without prejudice to the interests of the Philadelphia Rapid Transit Company. This bill also would have insured the construction of branches or extensions to the surface system of the Philadelphia Rapid Transit Company which may be required in growing sections of the city. Under present conditions, the franchise for any proposed additional street railway trackage in the city must first be offered to the Philadelphia Rapid Transit Company. If that company declines the franchise, the city may offer or grant it to other interests. In most cases no company other than the Philadelphia Rapid Transit Company could accept such franchise, for most of such extensions would be short and passengers on such lines, in order to reach other parts of the city, would be required to change cars and pay another fare.

The bill further provided that in such cases of through-routing reasonable joint rates should be established. The Public Service Commission was to be empowered to require the establishment of through routes and joint rates, and to fix the apportionment of joint rates in case the parties thereto were unable to agree.

This bill was introduced in the Legislature on March 22, 1915, and was referred to the Judiciary General Committee. It was never reported out of committee. The full text of this bill is given in appendix "K".

#### Applications to The Public Service Commission for Certificates of Public Convenience.

Immediately after the mayor's approval on July 2nd of the ordinances authorizing and directing the beginning of work on the Broad Street Subway and Frankford Elevated Railway, the city solicitor placed in proper legal form an application by the city to the Public Service Commission of the Commonwealth of Pennsylvania for a certificate of public convenience, which is necessary under the law before the construction of any new public utility can be begun. This application was filed with the Public Service Commission on July 9th. A copy of the application appears as appendix "L-I".

On July 12th the commission appointed July 26th for a hearing on the application, and this hearing was properly advertised. The hearing was held according to appointment at the Capitol in Harrisburg. The city solicitor and the director of the Department of City Transit appeared in support of the application, and Messrs. L. A. Ballard, representing the Philadelphia Rapid Transit Company; David E. Dallah, representing certain taxpayers of Philadelphia; and Charles L. Fluck, representing the Northwest Business Men's Association of Philadelphia, appeared in opposition to the application. Witnesses were called and examined, and the director of the department submitted an argument in favor of the application, copy of which is contained in appendix "M". Mr. Fluck presented an argument in opposition to the application. Mr.





Ballard offered in evidence certain statutes and contracts, and the hearing was closed with the proviso that a brief was to be submitted by the city solicitor on or before July 30th, and that the various parties who had made appearances in opposition would be allowed ten days thereafter in which to file answers.

The city solicitor filed his brief on July 30, 1915. On July 30th Mr. Ballard notified the commission that the Philadelphia Rapid Transit Company withdrew its opposition to the application.

On August 14th the commission issued the desired certificate of public convenience, copy of which is contained in appendix "N".

In compliance with the proviso (clause B) in the certificate of public convenience, granted on August 14, 1915, the city solicitor placed in proper legal form, and the city filed on November 24, 1915, an application for a certificate of public convenience to permit the city to construct a section of the Frankford Elevated Railway in Frankford Avenue, from Unity Street to Dyre Street, joining at Unity Street to the section covered by the certificate of public convenience issued on August 14, 1915.

The construction contemplated in this application constitutes an extension of that section of the Frankford Elevated Railway for which a certificate of public convenience was granted by the commission on August 14, 1915. This extension is an integral and necessary part of the Frankford Elevated Railway, the need for which and the propriety of which was fully set forth in the application to the commission filed by the city on July 9, 1915. A copy of the second application appears as appendix "L-2".

On November 26th the commission appointed December 13th for a hearing on the application, and this hearing was properly advertised. The hearing was held according to appointment at the Capitol in Harrisburg. On account of a controversy among some of the residents of Frankford regarding the location of stations on this section of the line, the commission withheld the desired certificate until the members could make a further investigation.

#### Court Proceedings.

On July 9th David E. Dallam, in behalf of "himself and all other taxpayers similarly situated who may intervene and join with him and contribute to the expense of these proceedings," filed a bill in equity and applied to the Court of Common Pleas for a perpetual injunction to **restrain** the city from proceeding with the transit plans. His bill of complaint in full appears in appendix "O".

The principal allegations in this bill are:

That the acts of Assembly empowered the city to proceed with transit development and the ordinances of Councils in prosecution of the same are unconstitutional, and that the adjudication of their validity should be secured.





That the total cost of the lines projected by the city will exceed the city's borrowing capacity and that the total cost will greatly exceed the estimates of the department.

That the city's action is in violation of the contract of 1907 between the city and the Philadelphia Rapid Transit Company, in that under that contract the city agrees to give the company a 90-day option on any proposed new line before the city can grant a franchise for such new line to any other party.

That the city has not asked or obtained a certificate of public convenience from the Public Service Commission.

Appearances in this suit were made before Judge Sulzberger in Court of Common Pleas No. 3 on July 12th, and a hearing was set for July 16th. The answer of the city to this bill of complaint is also contained in appendix "O".

At the hearing, held upon the date it was set, Ruby R. Vale, attorney for the plaintiff, made a statement of the plaintiff's case substantially in accordance with the bill of complaint. The city solicitor, appearing for the city, represented to the court that, contrary to the bill of complaint, the city's application for a certificate of public convenience had been filed with the Public Service Commission. Upon this representation the court issued a "cautionary order" to the effect that the affairs shall remain in status quo until after the decision of the Public Service Commission.

The Dallam application for a perpetual injunction was with-drawn on August 19, 1915.

#### PUBLIC DISCUSSION

##### General.

As in the previous year, the plans for rapid transit development were kept before the citizens during 1915 through the active support of the Philadelphia daily newspapers, which assistance the department again acknowledges with deep appreciation.

Public interest, thus stimulated and backed up by aggressive support of the leading business and civic organizations of the city, was of incalculable assistance to the department.

##### Academy Town Meeting.

In the early part of the year labor and business organizations which had been persistent in their demands for an early start on actual work, showed signs of impatience over the delay in making arrangements for the beginning of work on the high-speed lines. Throughout the city meetings were held by various organizations urging Councils to act. A town meeting to voice public sentiment and the demands of the people at large was proposed. At this particular time an agitation for a greater Navy Yard made its appearance. Workmen who travel to and from the Navy Yard daily, and who are compelled to



spend much time on the trolley cars because of inadequate service, took it upon themselves to call a town meeting to urge an early start on the plans for rapid transit. Using the statement of Rear Admiral W. S. Benson, then the Commandant of the Philadelphia Navy Yard, that a greater naval station depended largely upon adequate transit facilities, the thousands of workmen employed there prepared to voice their sentiment in forceful terms.

Under the auspices of the Employees' Association for the Development of the Philadelphia Navy Yard, a mass to protest against any further delay and to demand that an early date be set for a special election to authorize a loan for the beginning of work, was held in the Academy of Music on the night of January 14, 1915.

This meeting in many respects was one of the most notable of its kind ever held in Philadelphia. Navy Yard workmen in large force, accompanied by bands and carrying transparencies appropriately inscribed, marched on Broad Street, while thousands lined the sidewalks to witness the demonstration. So large was the crowd of citizens who responded to the call for a town meeting that the seating accommodations of the building were early taxed to capacity, several thousand failing to gain admission. Business men's associations in all parts of the city co-operated splendidly with the employees' association of the Navy Yard to make the town meeting a success. The request that it be made a citizens' meeting to voice the demand of the people for prompt action was responded to in a forceful manner by sectional organizations. Many of the delegations appointed by these bodies to attend the town meeting marched to the Academy of Music accompanied by music.

Delegations of business men from the North Philadelphia section, as well as Frankford, covered the entire distance afoot, thus furnishing a striking illustration of the interest which the meeting aroused all over the city.

Almost every organization interested in transit development was represented at the meeting.

The meeting was presided over by Congressman George S. Graham. The temporary chairman was George H. Williams, President of the Navy Yard Association, who, in a short address, reviewed the campaign waged by Navy Yard workmen for the acceptance by Councils of the program for rapid transit, and then introduced Rev. M. J. McSorley, of the Roman Catholic Church of the Assumption, who delivered a prayer.

Congressman Graham, before assuming the duties of presiding officer, delivered an eloquent address, in which he declared that the people gathered in town meeting constituted a force greater than Councils, greater than the Legislature, greater than Congress itself. "Your representatives," he said, "will heed you if they are actuated by the right principles. I believe in such agitation as you are creating."

Commandant Benson was then called upon, and in the course of his address stated that "if the people of Philadelphia want





a greater Navy Yard the city must provide adequate transit facilities for the men employed there and who live in every section of the city."

Director Taylor, who followed, spoke at length, reviewing the history of the transit question, explaining his recommendations and urging the consummation of the plans. This address appears in full in appendix "S".

Mayor Blankenburg, whose absence from the city prevented his attendance at the town meeting, wired greetings and success to the meeting from Asheville, N.C., as follows:

Grove Park Inn, Asheville, N.C.  
January 14, 1915.

To My Fellow Citizens in Town Meeting Assembled, Greeting:

Director Taylor's aggressive fight, backed by the mayor and the entire cabinet and all administration forces, and with the promised support of Councils, should soon solve the all-important question of subways and elevated railroads.

The people are practically a unit for the proposed improvements, and I trust Councils will favorably act upon the thirty million dollar Transit Loan to be submitted to popular vote at a special election to be held, let me urge, in March.

Let us be Philadelphians on this vital question, and not selfish partisans. Let us work for the well-being of all and not try to derive personal or political advantage by unnecessary delay.

I wish it were in my power to be with you this evening, to take part in this magnificent demonstration for a greater Philadelphia; but while absent in body, I am with you in spirit.

RUDOLPH BLANKENBURG, Mayor.

Senator Penrose, who accepted an invitation to be present, but was unable to attend owing to illness, sent the following letter, strongly indorsing the transit project, which was also read:

Hotel Shelburne, Atlantic City,  
January 13, 1915.

Mr. A. Merritt Taylor,  
Director, Department of City Transit,  
Philadelphia.

Dear Sir:

When I agreed to speak at the transit mass meeting which will be held in the Academy of Music tomorrow evening, I hoped



and expected to have recovered sufficiently from the effects of my recent illness to enable me to do so.

I regret to inform you that I am still suffering from a slight rise in temperature, and my doctor has advised me to remain here until this unfavorable symptom has disappeared. For this reason only I shall have to break my engagement to attend the meeting and to speak.

I have read the advance copy of your address with care. Will you please inform the mass meeting for me that I am heartily in accord with and endorse the plan of action with relation to transit development for Philadelphia which you have outlined in your address, and that I shall use whatever influence I may have to secure a special election at the earliest date possible to enable the citizens of Philadelphia to vote on the proposed increase in the city's indebtedness and to secure any legislative action which may be necessary to carry out the plan of action which you have outlined without any unnecessary delay.

I feel the same deep interest in your undertaking which prompted me to further the enactment of the transit legislation at the last session of the Legislature.

I fully recognize the necessity of establishing a complete high-speed system of subway and elevated lines in Philadelphia at once, and shall do everything in my power to aid you in bringing your work to an early and successful conclusion.

You have done well to take the people of the city into your confidence and to secure their support as individuals. The unanimous support of the public guarantees your success.

Yours very truly,

BOIES PENROSE.

The following preamble and resolutions, voicing the sense of the meeting and offered by Archie Allen, a Navy Yard employee, were adopted:

Whereas, The people of Philadelphia are suffering intolerable hardships, and the future development of the city is imperiled:

By reason of the congestion of traffic on the existing surface street railway system during the rush hours, resulting in discomfort, delay, inconvenience, and, in many instances, indecent conditions, and

By reason of the increasingly long time required to travel between homes and places of employment, resulting from the city's growth in areas, and

Whereas, As a result of inadequate transit facilities the population of this city is being crowded into the already built-up sections in flats and tenements, and

Whereas, The high-speed transit system recommended





will open up and make accessible wide areas in the outlying districts so that the working men and women of Philadelphia will be enabled to continue their past practice of owning individual homes with pleasant surroundings, and

Whereas, The aforesaid high-speed transit system will afford the people of the entire city ready access to the centers of employment, of amusement, of recreation and of education, quickly and for one five cent fare, and

Whereas, The illegal and discriminatory exchange ticket charges impose undue hardships upon the traveling public, and

Whereas, A satisfactory program of procedure has been outlined by Director Taylor, and has received the unqualified approval of people of all sections of the city and of representatives of a large number of various organizations to whom it has been expounded in great detail, and

Whereas, The city of Philadelphia is now legally qualified financially able, and properly equipped to proceed with the construction of the high-speed transit system as recommended; now, therefore, be it

Resolved, That the plan of municipal action outlined by Director Taylor for establishing adequate rapid transit facilities in Philadelphia be, and is hereby, approved, and, be it further

Resolved, That the Select and Common Councils of the City of Philadelphia be, and are hereby requested to call a special election to be held early in March for the purpose of affording the electors an opportunity to authorize an increase in the city's indebtedness to the extent of \$30,000,000, and, be it further

Resolved, That the Select and Common Councils be, and are hereby requested to determine and fix finally and legally the routes of the recommended high-speed transit system, and to submit the plan of this municipal development to the Public Service Commission of the State of Pennsylvania promptly for approval, as required by law, and, be it further

Resolved, That the Select and Common Councils be, and are hereby requested to take, without loss of time, each and every step necessary to secure the construction of the high-speed transit system by the city, and, be it further

Resolved, That the Select and Common Councils be, and are hereby requested to proceed with this transit development regardless of failure on the part of the existing street railway companies to enter into a contract for the equipment and operation thereof and to provide for the equipment and operation thereof later, and, be it further

Resolved, That the Select and Common Councils of the city of Philadelphia be, and are hereby requested to take each and every step necessary to eliminate promptly the illegal and discriminatory exchange ticket charge, and, be it further

Resolved, That Director Taylor be, and is hereby authorized and empowered by the citizens of Philadelphia here assembled to appoint a committee of not more than 1000 citizens of Philadelphia, representative of every interest and of every district in this city, if he deems it necessary, to aid the Department of City Transit in securing each and every action which may be required in furthering the terms of these



resolutions and in establishing adequate rapid transit facilities in Philadelphia, which committee shall have power to appoint and act through sub-committees, and to adopt any and all rules and regulations which may be deemed proper, and, be it further

Resolved, That the chairman of this meeting be, and is hereby instructed to send a certified copy of these resolutions to his Honor, Mayor Blankenburg, and to Select and Common Councils of the city of Philadelphia, with a copy of the Program for Rapid Transit Development, as outlined by Director Taylor at this meeting, to each.

I certify that the foregoing is a true copy of the Preambles and Resolutions adopted at the meeting.

(Signed) GEORGE S. GRANT,  
Chairman, Transit Mass Meeting,

Held in the Academy of Music on Thursday Evening, January 14, 1915.

The success of the town meeting of January 14th was the means of producing a city-wide demand for a special election to authorize an increase in the city's indebtedness for transit development. Business men's organizations in all sections of the city reiterated the action of the Academy meeting. Every daily newspaper, editorially, as well as in the news columns, urged Councils to grant the demand of the people. City-wide sentiment in favor of an early election was given added impetus by the distribution among citizens of over two hundred thousand small buttons in the city colors on which was inscribed "For the Transit Plan".

These buttons were purchased by civic and business organizations, and in many instances by newspaper owners and merchants, who distributed them among their employees as well as their customers.

The buttons were generally accepted with the pledge that they would be displayed until Councils acted favorably upon the transit program.

Several of the daily newspapers, as well as weekly papers, adopted the slogan "We Wear the Button", and displayed this inscription in a prominent place in each issue. This novel campaign in the interest of transit development did much to maintain public interest, and proved a convincing indication that public sentiment favored prompt and decisive action.

#### Loan Election.

The general demand for favorable councilmanic action on the plans for transit development continued in all sections in an aggressive manner. On February 18th, however, the citizens, who had expected that no obstacles would interfere with an early election, were again aroused by the introduction in Councils on that date of an ordinance authorizing a \$6,000,000 loan based "upon the assessed valuation of taxable personal property."

This ordinance, which was promptly pronounced by John G. Johnson, Esq., to be legally defective, was the means of arousing a storm of protest. A second town meeting was held in the





Academy of Music on the night of February 24th, at which a vigorous protest was raised against the passage of the ordinance.

Addresses were made by the mayor, former Judge Porter, Mr. Roland Morris, Dr. P. H. Moore, Mr. George W. Norris, at that time director of the Department of Wharves, Docks and Ferries, and the director of the Department of City Transit.

On the following day a committee of leading merchants and citizens, known as "The Committee of 1000", was formed to require an amendment to the objectionable ordinance. Special meetings of business men's associations took up the subject throughout the entire city.

On March 4th, when Councils again convened, the galleries of both chambers were crowded by citizens. The ordinance, in an amended form, with the most objectionable features eliminated, was introduced and passed with the date fixed for the special election.

#### Location of Frankford Stations.

Following the awarding of contracts for the work in progress on the Frankford Elevated line, there developed a difference of opinion among certain of the business men and citizens of that section as to the location of the stations as recommended by the department. In order to give the matter a proper exposition, and all those interested in the subject an opportunity to express their views, the director attended a public meeting in the Frankford Library which took place on the afternoon of Friday, October 22nd.

The controversy largely concerned the question of locating a station at Unity Street in preference to a site already designated serving Orthodox-Arrott Streets, and selected as such because of traffic, as well as natural conditions existing at these streets. There prevailed, however, among certain of the Frankford citizens a conviction that Unity street should have a station despite the fact that it is not at present, and not likely to become in the near future, a continuous thoroughfare, as are Orthodox and Arrott Streets. This element also failed to give consideration to the traffic conditions present at Orthodox and Arrott Streets, as shown by diagram No. 12, where about 50 per cent. of the traffic in and out of Frankford centers, and where existing surface lines designated as free transfer lines under the terms of the "Program for Rapid Transit Development" operate.

The meeting was largely attended, and everyone of the interested citizens was given the widest latitude in expressing his views. It was made plain, however, by the director that if a station were placed at Unity Street it would be impossible, from an operating as well as a rapid transit point of view, to locate a station at Orthodox-Arrott Streets because of the close proximity of the points involved in the discussion.

After the matter had been debated for more than three hours, the director stated that he desired to take a vote to test public sentiment on the subject. The question was put and the station locations designated by the department were approved by a vote of 62 to 32.





OPERATING LEASE

Status.

In May, 1914, the director of the department and officials of the Philadelphia Rapid Transit Company, after a long series of negotiations, completed a tentative arrangement for the equipment and operation of the high-speed lines to be built by the city. This arrangement was immediately published in full, and was printed in full in the 1914 report of the department. It has been fully described and discussed publicly. The parties to the arrangement agreed to use their best efforts to secure its ratification by all parties at interest. The department repeatedly and without qualification has recommended the adoption of this arrangement by the city government. The department is now and always has been ready and anxious to conclude this arrangement.

Abolition of The Three-Cent Exchange System.

The operation of the proposed city-built high-speed lines, whether by the Philadelphia Rapid Transit Company or by an independent operator, will result automatically in the elimination to a large extent of the 3-cent exchange tickets. The way will thus be opened to the removal of this expensive and annoying burden to street railway passengers in this city. In no other large city is such a charge imposed, and the proportion of free transfer to revenue passengers is comparatively small.

The application of the 3-cent exchange ticket charge is very irregular, and the irregularity cannot be justified on any grounds of service, as the average fare per journey is higher in Philadelphia than in any other large American city.

The tentative arrangement for the equipment and operation of the high-speed lines to be built by the city, which was completed by the director of the department and the officials of the Philadelphia Rapid Transit Company in May, 1914, contemplate the elimination of exchange tickets in a manner which will afford the Philadelphia Rapid Transit Company material protection.

The legal status of the 3-cent exchange ticket system has been thoroughly investigated by the department. In appendix 'I' will be found opinions on this and other pertinent subjects solicited from Hon. Michael J. Ryan, City Solicitor; George Wharton Pepper, Esq., William Draper Lewis, Esq., Charles L. McKeehan, Esq.; Parker S. Williams, Esq.; William A. Glasgow, Esq.; and B. Gordon Bromley, Esq.

TENTATIVE SUGGESTION OF POSSIBLE MODIFICATION OF AGREEMENT FOR LEASE OF CITY-OWNED RAPID TRANSIT LINES TO THE PHILADELPHIA RAPID TRANSIT COMPANY, BASED UPON RECOGNITION BY THE CITY OF CASH ACTUALLY PAID IN BY THE UNION TRACTION COMPANY AND THE PHILADELPHIA RAPID TRANSIT COMPANY.

The co-operative program for lease of the city-built rapid transit lines by the Philadelphia Rapid Transit Company, arranged





by the department and officials of the Philadelphia Rapid Transit Company, not having been ratified, a modification might be made, differing principally from the original program in that the preferential payment to protect the company against loss from diversion of traffic be based upon the actual cash investment of the Philadelphia Rapid Transit Company and the Union Traction Company. The compensation for abandonment of the 3-cent exchange system is increased, but this increase in compensation would appear in the net income of the company, and therefore would ultimately operate to relieve the preferential payment.

There has actually been paid in:

On Union Traction Company stock .....	\$10,500,000
On P.R.T.Co. stock (approximately) ..	<u>30,000,000</u>
Total .....	\$40,500,000

It is suggested that the city allow 6 per cent. cumulative on this money out of the net income of the present and new systems. This agreement would have the effect of a recognition by the city of all the cash - and the cash only - actually paid in on the street railway system since 1895, or the time of the general reconstruction for operation by electricity.

It is further suggested that provision be made for the payment of the balance, amounting to \$19,500,000, still due on Union Traction Company stock. In these particulars of finance the city would treat with the two companies as one, leaving them to make their own division of the income realized and allowed by the city hereunder.

In all particulars, unless otherwise stated herein, the terms of the co-operative program of May 27th, 1914, should appear as a part of this suggested tentative agreement. The Philadelphia Rapid Transit Company would lease, equip and operate at cost all rapid transit lines built by the city. The city would have the right to require the company to make reasonable extensions of the surface system. The Philadelphia Rapid Transit Company would waive dividends accumulated up to January 1, 1916, under the 1907 contract. The books, accounts and records of the company would be open at all times to the department for examination and audit.

#### Distribution of Net Earnings.

The net earnings of the rapid transit lines built by the city and leased to the company would be distributed as follows:

1. Payment to the company of 6 per cent. annually on cost of equipment. This payment would be cumulative if not earned in any year or years.
2. Preferential payment to the company an amount necessary to make the net income of the company each year equal to \$2,430,000, which would be required to pay a 6 per cent. return on the cash then actually paid in by the Union Traction Company and the Philadelphia Rapid





Transit Company. This preferential obligation would be limited to \$600,000 in any year, and would be a charge collectible only from the receipts from operation of lines built by the city. This payment would be cumulative.

3. Payment to the city of amount of interest and sinking fund charges on bonds issued by the city and on city funds derived from sources other than such bonds, but devoted to the construction of rapid transit lines. The city's investment in construction would be considered to include interest during construction and all other charges or expenditures on account of the establishment of rapid transit lines by the city. This payment would be cumulative.

4. The residue of the net earnings, if any, would be divided between the city and the Philadelphia Rapid Transit Company in proportion to the investment of each in construction and equipment.

#### Abandonment of Three-Cent Exchange System.

The company would abandon, on and after January 1, 1916, 3-cent exchange tickets now issued for use at points outside the district bounded by Arch and Walnut Streets and the Delaware and Schuylkill Rivers. Free transfer tickets would be issued in place of such exchange tickets, and further would be issued for use at all points of intersection of surface lines in the same territory for journeys in a forward direction and not involving the issue of a transfer on a transfer.

The use of exchange tickets in the district thus excepted would be abandoned whenever a delivery loop is built, and free transfer tickets would be substituted for such exchange tickets.

Free transfers would be given between all high-speed lines and between all high-speed lines and surface lines, as outlined in the program of May 27th, 1914.

As consideration for the abandonment of exchange tickets, the city would waive or remit temporarily taxes now paid by the company to the city on dividends in the amount of \$115,579 per year, and on account of paving maintenance, snow removal and car licenses in the amount of about \$500,000 per year, until 1918, when it increased to about \$550,000 per year. One year after the opening of the Broad Street Subway the company would resume payments to the city on account of the payments thus waived or remitted, beginning with \$100,000 for the first year and progressively increasing at the rate of \$100,000 per year up to the limit of liability under the 1907 contract, the terms of which in this particular would thereafter apply.

In further consideration of the abandonment of exchange tickets, the city would allow the company to postpone payments to the special sinking fund required by the 1907 contract until the year 1926, after which the sinking fund payments would be so increased and proportioned as to produce the same amount at the expiration of the 1907 contract extended for nine years as would be produced by the payments as specified in that contract at the original date of expiration.

Camden Tube.





The city would give the right to the Philadelphia Rapid Transit Company, or a subsidiary, to build the proposed tube to Camden as an extension of the Market Street Subway, with a right to charge a fare of 3 cents thereon. The company would be required to exercise this right promptly. The city would not derive direct financial benefit from the Camden tube unless the general construction program or conditions should operate to make a preferential payment necessary, in which case the net income from the Camden Tube would tend to reduce the preferential.

#### Discussion of Suggested Agreement.

It is undoubtedly to the advantage of the city and its citizens that the rapid transit lines to be built by the city shall be operated by the Philadelphia Rapid Transit Company with a general free transfer system. The co-operative program for such an arrangement, which was negotiated last year and quoted in full in the annual report of the department for 1914, was not concluded by the parties at interest; and it is therefore desirable to determine on what, if any, equitable basis the city and the Philadelphia Rapid Transit Company can conclude an agreement. The department agreed to and recommended the co-operative program, and likewise it would approve the modification thereof outlined, which may or may not be more advantageous to the Philadelphia Rapid Transit Company than the co-operative program. The modified plan outlined would secure to the city the great desiderata of a unified transportation system and the abolition of the 3 cent exchange system.

The principle of the "preferential payment" has been definitely accepted in New York City, and has been thoroughly discussed here in Philadelphia. However, the basis of the payment or the limits of the net income to be protected or practically guaranteed is not easy to fix or determine equitably. In the co-operative program it was proposed that this basis should be in effect the actual net income of the company at the time of beginning operation of the city lines, and the loss of income from causes other than diversion of traffic by the new lines was expressly excepted from consideration. The agreement now suggested provides that the net income guaranteed shall be an amount somewhat smaller than estimated under the terms of the co-operative program, but to a certain limit the city would agree to base the preferential payment on this figure regardless of the cause of reduction in net income. This is a reasonable provision, because it avoids controversy over the cause of any loss of net income which the company may experience. The operation of a city transportation system is subject to many vicissitudes, the effect of which cannot be accurately traced in the income account. The department is absolutely and unchangeably opposed to allowing a preferential payment without limit, for this in effect would mean that the city would guarantee all the present fixed charges of the company against disasters of all kinds, strikes, incompetent operation or new developments in the transportation field.

The suggested agreement would have the great advantage of correcting the undesirable situation which exists, and always will exist, so long as the balance on the Union Traction Company's capital stock remains unpaid.





The direct compensation for abolition of the 3 cent exchange system is greater than contemplated by the co-operative program. This may have the effect of reducing the preferential payment and will thus in part revert to the city. It will further assure that the company will be placed in a better financial position to equip and operate the city's system.

#### Financial Results of Operation.

The estimated financial results of operation to the city and company of the rapid transit lines authorized by ordinance of July 1, 1915, incorporated under this suggested plan, are set forth in statements Nos. 184 to 194. The city's deficit for one year, including tax abatements for elimination of exchange tickets, which is a maximum of \$1,818,200, will disappear in about the year 1940. This would leave thirty profit-earning years before the expiration of the contract, but it must be remembered that at the expiration of the contract the city would own the entire property and equipment, practically free of debt, by reason of the operation of the sinking fund, and would obtain the profits from operation in perpetuity. This is without any regard to the substantial collateral benefits which the city and its citizens will receive in the way of taxes on abnormal increases in assessed valuation due to rapid transit development, or of time saving afforded by the high-speed system or from the abolition of the 3-cent exchange tickets.

As estimated, based upon the present and past statements of the company, the minimum surplus or net income of the company applicable to the stock of the Philadelphia Rapid Transit Company is 796,700 in the year 1922. Under the preferential clause of this plan the surplus is to be maintained at not less than approximately \$630,000. It is thus seen that under all present expectations the abatements and credits allowed the company will be sufficient to offset the preferential payment which would otherwise be due the company. The net income of the Camden Tube, if built, would go to the company under this agreement, and would, therefore, increase the surplus by from 370,300 for the first year of operation to about \$700,000 in 1930. Under this arrangement the city gets no financial benefit from the Camden Tube unless the surplus or net income of the company, without that from the Camden Tube, is reduced below the basis of the preferential payment.

The estimated financial results to the Philadelphia Rapid Transit Company, and to the Philadelphia Rapid Transit Company and the Union Traction Company treated as one, are given in statement No. 197. From the amount of \$796,700 for the year 1922, the net income applicable to the stock of the Philadelphia Rapid Transit Company (after the payment of all rentals specified in the present lease by the Union Traction Co. to the Philadelphia Rapid Transit Company) is estimated to increase to \$1,353,800 in 1930. If the Camden Tube be built, the estimated net income is \$1,257,700 in 1922 and \$2,072,900 in 1930.

If the Woodland Avenue (Darby) line is built promptly and operated under this plan, the financial results are estimated as set forth in statements No. 195 to 201. It will be noted that the city's deficits in this case, without taking into consideration offsets thereto, but including the Camden Tube, are estimated to be considerably





greater, the maximum with the Woodland Avenue line being \$2,375,200 for the year 1921, as compared with \$1,818,200 and \$854,700 in the year 1930, as compared with \$618,500. The city's deficit, without taking into consideration offsets thereto with the Woodland Avenue line included, would probably disappear in the year 1939. Without the Woodland Avenue line the deficit disappears in about the year 1940.

If the city builds the recommended Woodland Avenue line, and also the recommended Northwest Elevated line, the latter beginning operation in the year 1922, the estimated financial results to city and company are given in statements No. 202 to No. 208. The city's maximum yearly deficit would be no greater than with the system authorized, including the Woodland Avenue line. The deficits for the following years, however, and in total, are considerably greater. If offsets thereto be left out of consideration, they would probably disappear about a year later than they would with only the authorized system or the authorized system including the Woodland Avenue line in operation. The results to the company, if both the Woodland Avenue and the Northwest lines be built, are less favorable. Even with the profitable Camden Tube in operation, the preferential payment applies from the year 1925 to about 1930, and during this period the net income of the company would remain at the guaranteed minimum.

#### Offsets to Operating Deficits.

It will be noted in each case that the city and public receive large real financial offsets against these deficits from operation. The saving from the elimination of the 3-cent exchange tickets alone offsets the deficit unless the Northwest line be built. The city then obtains a large, clear and direct financial gain from taxes on abnormal increase in taxable values due to rapid transit development, which increased taxes are estimated to amount to \$3,000,000 per year when fully developed. With the time saved to the traveling public, valued at 15c. per hour, the public will obtain an additional benefit worth an amount which increases each year to upwards of \$3,000,000 in 1930.



Project in General

The Director of the Department of City Transit of the City of Philadelphia makes the application to the Public Service Commission under the authority of the above mentioned ordinances.

It was received at the office of the Secretary July 19th, 1915 and was addressed to the Public Service Commission as is a petition for Certificate or Certificates of Public Convenience.

In full it is as follows:

"TO THE PUBLIC SERVICE COMMISSION  
"OF THE COMMONWEALTH OF PENNSYLVANIA.

"PETITION FOR CERTIFICATE OR CERTIFICATES  
"OF PUBLIC CONVENIENCE.

"The petition of the City of Philadelphia for a certificate or certificates of public convenience, respectfully represents:--

"1. That the name of the petitioner is THE CITY OF PHILADELPHIA.

"2. That the name and address of the attorney for the petitioner is MICHAEL J. RYAN, City Solicitor, City Hall, Philadelphia, Pennsylvania.

"3. That the said City is a municipal corporation, being a city of the first class, coterminus with the County of Philadelphia.

"4. That the petitioner makes this application under the authority of the two Ordinances of Select and Common Councils of the said City, approved the 2nd day of July, A.D. 1915, one of said Ordinances authorizing the Department of City Transit to construct a portion of the subway railway to be established in Broad Street, between League Island and Olney Avenue. Section 1 of the said ordinance provides for the entering into a contract or contracts for the construction of a portion of the subway railway to be established in Broad Street between League Island and Olney Avenue with the necessary branch lines northeast and northwest from Broad Street, comprising the section extending from a point in Broad Street at the north side of the existing subway structure of the Market Street Elevated Passenger Railway Company north of City Hall to a point in Broad Street at the south side of the existing subway structure of the Market Street Elevated Passenger Railway Company south of City Hall, and passing diagonally under the westerly side of City Hall, together with any or all work appurtenant thereto, including station platforms and entrances; and the other of said Ordinances, approved the 2nd





day of July, A.D. 1915, authorizing the Department of City Transit to construct a portion of the elevated railway to be established from Front and Arch Streets to Rhawn Street. By Section 1 of said last mentioned Ordinance it is provided that the Department of City Transit be and is thereby authorized and directed to enter into contracts for the construction of a portion of the elevated railway to be established from Front and Arch Streets to Rhawn Street via Front Street, Kensington Avenue and Frankford Avenue to Rhawn Street, comprising the section extending in Front Street between Callowhill Street and Kensington Avenue, in Kensington Avenue between Front Street and Frankford Avenue, and in Frankford Avenue between Kensington Avenue and Rhawn Street, together with any or all work appurtenant thereto. The said Ordinances also provided for the advertising for proposals and for the awarding of contracts for the work mentioned and provided for therein. Certified copies of said Ordinances are hereto attached.

"5. (a) That the name and location of the principal office, plant and equipment of the Philadelphia Rapid Transit Company, owner, lessee or operator rendering like service within the municipality, is at Eighth and Dauphin Streets, in the City of Philadelphia.

(b) The names of the executive officers of the said Philadelphia Rapid Transit Company are - T.E.Mitten, President and Chairman; R.B.Hamilton Vice President, and R.B.Selfridge, Secretary and Treasurer.

(c) The said Philadelphia Rapid Transit Company, owner, operator and lessee, furnishes transportation service to the citizens of Philadelphia by surface railways in a large number of the streets of the said City, and by subway and elevated railways under and over the surface of Market Street and from Front Street to Sixty-ninth Street in Delaware County, with an elevated spur or extension on Delaware Avenue from Market Street to South Street.

(d) A full description accompanied by maps, profiles, etc. of the proposed structures provided for in the said Ordinance accompanies this petition.

(e) The manner in which the municipality proposes to pay for or finance the acquisition, construction and operation of the proposed railways, plant equipment and other facilities is by means of a loan of Six Million Dollars authorized by Ordinance approved June 30, 1915; the sum of Three Million Dollars thereof being set aside in Item 180 Loan to be used for or toward the construction of the said section of the Broad Street subway and work appurtenant thereto, and the sum



of Three Million dollars in Item 180 Loan to be used for or toward the construction of the said section of elevated railway and work appurtenant thereto; and from other loans to be negotiated hereafter, under the authority conferred by the Acts of General Assembly of July 21, 1913 and July 24, 1913, Pamphlet Laws 1913, page 868 and page 973 respectively, or other loans which may be lawfully issued by said City for such purposes.

(f) That there is great need for said railways in order to relieve the congestion of the existing roads or lines of railway, and their inability to properly accommodate and afford facilities for rapid transit for the citizens throughout the said city as well as for the convenience and safety of the public by such relief from the present condition of the public highways, said existing roads and lines of railway being wholly inadequate and insufficient to accommodate the growing traffic and travel therein.

(g) That the Philadelphia Rapid Transit Company and the various street railway companies owned, operated or lessed by it, are the only corporations with which the proposed exercise of the right, power, franchise or privilege may or can compete.

"6. That the approval of this application and the granting of a certificate or certificates of public convenience in pursuance thereof are necessary and proper for the comfort, service, accommodation, convenience, and safety of the inhabitants of the said City of Philadelphia, and to those sojourning therein, and for the extension of rapid transportation facilities, the promotion of traffic and the increased ability to effect and promote rapid, sufficient and safe transit for the citizens of the said City and others, and the development of the City and of land and property therein,

"7. That the provisions of the Public Service Company law of Pennsylvania applying to this petition and the prayer thereof are Article 3, Section 3 - (d) and Article 5, Section 18 and 19 of the Public Service Company Law, and Rule 25 of the Rules of Practice of the said Public Service Commission.

"The petitioner therefore prays that a time and place of hearing be fixed for the consideration of this petition in accordance with Section 4 of Rule 36 of the Rules of Practice of the Public Service Commission, and that the approval of the said petition and a certificate or certificates of public convenience by the Public Service Commission may be granted as prayed for.

CITY OF PHILADELPHIA

BY.

(Signed) A. Merritt Taylor  
Director, Department of City Transit.





## The Amplified Statements of the Director

Accompanying the petition is a more amplified statement by Director Taylor. The following are excerpts from it, and from other reports of his.

The amount and character of the service rendered within the City of Philadelphia by the Rapid Transit Company may be stated as follows:

### 1 - Philadelphia Rapid Transit Co.

Electric surface street car service is over 665 miles of track, occupying 439 miles of street and right of way, of which 589 miles of track and 380 miles of street and right-of way are within the city limits. Electric high-speed service is over 14.7 miles of track, occupying 4.1 miles of subway and 10.6 miles of elevated structure, all of which, excepting about 1.0 mile is located in streets of the city.

"During the year to June 30, 1914, the Philadelphia Rapid Transit Co. operated 82,911,808 car miles, carrying 483,283, 959, revenue passengers.

"The subway-elevated lines extend west and west principally in Market Street from the western city limits to the Delaware River, thence southwardly along Delaware Avenue for 0.8 miles. Free transfers are issued between this line and cross-town surface lines serving the westerly portion of West Phila. Intra-city passenger transportation in all the remainder of the city is dependent upon the surface system upon which its speed varies from about 8 miles per hour near the central part of the city to over 11 miles per hour in the outskirts, and upon suburban service of the steam railroads which is infrequent, expensive and irregular as to intervals between trains."

### 2 - Financial Program

"The manner in which the city proposes to pay for or finance the acquisition, construction and operation of the proposed plant - subway railway in Broad Street, from League Island to Olney Avenue, with the necessary track lines northeast and northwest from Broad Street, and an elevated railway from Front and Arch Streets to Rhawn Street via Front Street, Kensington Avenue and Frankford Avenue - equipment, or other facilities is as follows:-

#### Estimate of cost of construction

Broad Street subway	\$32,646,000
Frankford Elevated Railway	<u>8,310,000</u>
Total	\$40,956,000



This estimate includes real estate and easements, engineering and accumulative expenses and interest during construction but not sinking fund charges during construction. The city purposes to raise this money as follows:

By sale of 30 year 4% Bonds	\$34,955,000
From current funds	
Eng. & ad.expenses (Dept. of City Transit)	\$3,838,000
Interest during construction	<u>2,163,000</u>
	6,001,000
Total	<hr/> \$40,956,000.

If the amendment to the State Constitution in regard to city loans shall be acted upon favorably at the election next November, the City proposes to finance the construction of the proposed subway and elevated lines as follows:-

Proceeds from 4%-30 yr. bonds at par	\$ 6,000,000
From current funds	
Int. charges on above bonds during construction	\$ 720,000
Administration & Engineering	<u>754,693</u>
	1,474,693
Proceeds from 4%-50 Yr . Bonds	33,481,307
Total	<hr/> \$40,956,000

### 3 - Equipment and Operation

It is the purpose of the City to enter into an arrangement with the Philadelphia Rapid Transit Company, if possible, for the equipment and operation of the subway and elevated lines under the turn of a co-operative program which has been tentatively agreed to, in a manner which will best serve the public interests and at the same time protect the existing net income of the Philadelphia Rapid Transit Company against loss resultant from their co-operation.

Only, as a last resort, in the event of failure on the part of the Philadelphia Rapid Transit Company to enter into such an equitable arrangement, the City will reluctantly secure an independent operator to equip and operate the subway and elevated lines for a term not exceeding 50 years.

If the lines be leased to a company independent of the Philadelphia Rapid Transit Company, it will be necessary to extend the Frankford elevated lines westward from Front Street subway by arrangement with the Philadelphia Rapid Transit Company; otherwise via a subway extension to Chestnut Street, thence westward under Chestnut Street. The cost of construction of such an extension in subway from Front and Arch Streets to Chestnut Street and westward to Fifteenth Street would be \$5,974,000.





If the accommodation delivery loop in Arch, 8th and Locust streets be authorized later and built, the additional cost will be \$5,822,000.

It is assumed that power will be purchased, therefore no estimate for generating plant is included.

#### 4 - Agreement

Director Taylor reached a tentative agreement with the Philadelphia Rapid Transit Company for the equipment and operation of the subway and elevated lines. Embraced in its was a plan for the elimination of the 8 cent exchange system and for the establishment of a universal free transfer system together with certain modifications of the contract of 1907 between the City and the Company.

This arrangement was made contingent upon the co-operation of the Union Traction Company and the officials of the Philadelphia Rapid Transit Company. No such confirmation has been given to date.

The fact that the officials of the P.R.T.Co. made this arrangement after a long negotiation and discussion is prima facie evidence that the terms thereof are fair.

Under the terms of the agreement the exchange ticket system would be entirely abolished by January 1st, 1920. The concessions made by the city are:-

1. The abatement for 6 years of the tax on dividends above 6% which amounts to \$115,579.00 per year.
2. The abatement for 10 years of the payments under the 1907 contract to the special city sinking fund erected for the purchase by the city of the capital stock of the Philadelphia Rapid Transit Company at the expiration of the 1907 contract.

The recommended arrangement would thus relieve the people of Philadelphia at a very early date of the 8 cent fare system which is not tolerated in any other city of importance in America and which is grossly discriminatory in its application.

If the recommended arrangement does not go through Director Taylor recommends that the City take steps to procure the abolishment of the discriminatory 8 cent exchange system by due process of law.

Under the recommended arrangement the Philadelphia Rapid Transit Company is bound to provide extension to its surface system when and as required by the development of the city. At present although the company has a practical monopoly of the streets, the city itself is without power to require the company to make extensions. Thus the company may refuse to give service to any newly developed locality and may practically prevent any one else doing so.



5 - Program for Rapid Transit Development  
with Free Transfers.

Company's Proposed Investment -- The company would equip the City built lines.

The tube under the Delaware River to Camden to be built by interests holding that franchise. This line would be leased to the P.R.T.Co. and operated as an extension to the Market Street elevated service, but with an additional fare of 3 cents. The franchise to be granted by the city enabling the construction of the two to be for 50 years and ownership of the two, subject to bonds issued for the cost thereof to be vested in P.R.T.Co.

City's Proposed Investment -- Build the subways and elevated structures. The Frankford - Darby line to be operated by a Market Street subway between Front and Arch Streets and Thirtieth and Market Streets, pending the time when the city constructs the Chestnut Street subway or other city-built connections or delivery facilities for these two lines.

Method of Equipment -- The company to agree to provide all necessary equipment for and to operate the above mentioned city-built lines, or any of them, if and when built, and at the option of the city, any or all the city-built lines during the term of this contract, on the following basis.

From net earnings deduct items 1, 2 and 3 as follows:

1. (a) Interest on company's investment at 6% cumulative.
- (b) In addition to the 6% return on the company's investment for such equipment, beginning 10 years from the date of this contract, the city shall allow, and the company shall pay, to a depository to be designated by the city, for its account, 1% per annum upon the cost of such equipment for the purpose of amortizing the cost of such equipment during the term of this contract.

The said depository may invest such amortization fund as far as practicable, in the bonds which the company has issued to pay for such cost of equipment, at a price not to exceed 110% of their face value with accrued interest, and the interest on such bonds bought with this sinking fund is to accrue for the benefit of and to be paid to the sinking fund for the purchase of additional bonds.

The said payment of 1% per annum for such sinking fund on the equipment purchase during each year of this contract shall cease upon completion of said amortization..





Upon the expiration of the contract period of 50 years the company shall surrender the then existing equipment of the city-built lines to the city on being paid the cost thereof.

Accruals in the aforesaid sinking fund may be used by the city for the purpose of making such payments. When the equipment is so surrendered by the company to the city, all reserve, depreciation and amortization funds which may have been established and accumulated in connection with the maintenance and operation of the city-built lines shall be paid to the city.

## 2 - Preferential payments.

The base figure which shall be used in ascertaining the amount of the preferential payments as hereinafter specified, shall be that amount which represent 110% of the average annual net income (other than that derived from exchange tickets) of the Company from its present system with surface extensions for the two years(fiscal) prior to the operation of the first City-owned high-speed line, unless during the first of the two fiscal years aforesaid there be some unforeseen, unusual and abnormal occurrence which causes an abnormal, decrease in the net income of the company, then the base figure may be taken at 115% of such average annual net income for the preceding and succeeding fiscal year; or if there should be such an occurrence during the last of the two first mentioned fiscal years which causes an abnormal decrease in the net income, then the base figure may be taken at 120% of such average annual net income for the two preceding fiscal years.

If other City-owned high-speed line or lines be placed in operation thereafter while the Company is entitled to the preferential payment calculated as prescribed herein, then the base figure of annual net income of the present system with surface extensions prior to the beginning of operation of such subsequent City-owned line or lines should be calculated as prescribed for the first city-owned line, but there shall be added the net income specified diverted from the present system with surface extensions by the operation of the said first operated city-owned line or lines.

If other City-owned lines be placed in operation after a preferential payment ceases to be necessary, then the base figure of annual net income of the present system with surface extensions prior to beginning of operation of such subsequent city-owned lines shall be calculated as prescribed for the first city-owned line.

If the net income of the then existing system of the P.R.T. Co. (except Camden Tube) in any year after the opening of a municipally-owned line falls below the base figure, the preferential payment shall be the amount required to make up the difference between the net income for such year and the base figure; provided, however, the amount of any such preferential payment shall be limited to and shall never exceed such decrease in the net income of the then existing system of the P.R.T.Co. (except Camden Tube) which results solely from the diversion of such normal net income as may have been gained prior to the opening of municipally-owned line or lines.



In determining the amount of any preferential payment it will be presumed that any decrease in the Company's net income below the base figure is due to such diversion of traffic, except to such extent as it may be shown to be due to other causes.

Credits Allowed City on Preferential Payments-- After the preferential for any year has been so determined it will be reduced by these credits, namely:

- (a) The net income resulting from the operation of the Camden Tube.
- (b) The difference between the rate paid and 6% on operator's equipment investment.
- (c) Payment made for the use of the Market Street Line between Thirtieth and Front and Arch Streets.

3. Interest and sinking fund on City's investment, cumulative.

Division of Surplus Earnings--

4. Divide balance of surplus earnings of all City-built lines between the City and Company, in proportion to their relative investment therein (Market Street Subway investment excluded).

Free Transfers--

5. Free transfers to be given wherever surface lines intersect high-speed lines (City's and Company's) at station points, enabling a passenger to transfer in a forward direction (except to and from the Camden Tube), but the aforesaid free transfers shall not be made in the business districts until January 1, 1920.

Free transfers to be given all passengers transferring in a forward direction between all company-owned and municipally-owned rapid transit lines at points of intersection where stations exist (except to and from the Camden Tube.)

The intent being to make all high-speed lines (City's and Company's) available as a link in a complete journey in a forward direction between any two points within the city for five cents, but not to compel the company to give a transfer upon a transfer on its own surface system without a high-speed line intervening. In all cases where the fare collected covers a ride upon any line or lines of the Company and upon any line or lines of the City, the fare collected shall be equally divided between the company-owned and the municipally-owned lines; that is to say 2-1/2 cents to the company-owned lines and 2-1/2 cents to the municipally-owned lines. Should the result of the aforesaid division of fares appear to be inequitable and unjust to either party, such party may require the question to be submitted to a board of arbi-





tration for determination, one member of which board shall be appointed by the city, one by the company and the third by the Public Service Commission. The findings of the board of arbitration to be subject to final review only by the Public Service Commission of Pennsylvania.

Such regulations to be established and enforced as may be found necessary to prevent the misuse of transfers.

#### Future High-speed lines:--

6. When the City builds the Chestnut Street subway, or other delivery facilities or connections to the Frankford and Darby Elevated Lines, Company to equip and operate the same on the above basis.

City to have the right to require company to equip and operate on the above basis additional rapid transit lines or extensions which the city may from time to time build.

#### Surface Extensions--

7. City to have the right to require the Company to extend its surface system from time to time after the Public Service Commission, upon hearing, determines that such extensions are likely to be reasonably remunerative, either separately or in conjunction with the system, to the P.R.T.Co., provided not more than approximately four (4) miles of single track be requested by the City for the years ending June 1916, and June, 1917.

#### Extension of 1907 Contract--

8. 1907 Contract to be extended seven (7) years. In future division of earnings provided under Contract, City to receive during last seven (7) years of extended contract and thereafter (If property is not purchased at expiration of extended term) all surplus earnings over 6% on par value of P.R.T.Co. stock.

Note. - City to be permitted to capitalize its interest and sinking fund accruals to end of first year of operation. Company to be permitted to capitalize its interest accruals to end of first year of operation. Such accruals as are capitalized shall not be taken out of earnings and shall be considered a proportionate part of the cost.

#### Market Street Rental--

During the operation of the Frankford-Darby Line through Market Street Subway, there shall be charged against the earnings derived from such line under Item 1, such portion of the fixed charges accruing against that portion of the structure which is used by the Frankford-Darby Lines as shall bear the same proportion to the whole fixed charge on that portion as the proportion of car miles operated by the Frankford-Darby trains through that portion of the subway bears to the car-mileage of all trains operated through that portion of the



subway. The fixed charge against the operation of that portion of the subway which is used for surface cars not to be included in the above calculation. The term fixed charge in this paragraph means 6% on cost.

If the City elects to build the Frankford Line first, the operation and fixed charges against the Frankford line shall be calculated on the costs westwardly on Market Street to Thirteenth Street only, subject to the above-mentioned credit. Such Frankford and Barboursville trains as may be routed through the Sixth-ninth Street or Camden shall only be charged with one-half of the expense and fixed charges which would be due company for the operation of through trains in the section between Front and Arch Streets and Thirtieth and Market Streets.

#### Union Traction Co-operation--

The Philadelphia Rapid Transit Company will rely upon the Union Traction Company to aid in securing only such funds as will be required for the normal extension of the existing system, the requirements for which will be greatly lessened by the establishment of the new high-speed lines.

Wages paid on and charged against the operation of all new high-speed lines shall be reasonably compensatory for services rendered, but shall not exceed the same rate per hour paid for similar services on Company's high-speed lines at that time.

Union Traction Company and Market Street Elevated Passenger Railway Company to become parties to and be bound by the terms of the agreement with the city.

All dividends accrued on P. R. T. Co. stock up to December 31, 1914, to be waived and cancelled.

The Department of City Transit to have free access at all times to the books, accounts and records of the company and the right to audit the same.

#### Exchange Tickets Eliminated--

Company to eliminate all exchange tickets excepting those in the delivery district, which is defined as bounded by Arch and Walnut Streets, and the Delaware and Schuylkill Rivers, both of the aforesaid streets inclusive, on January 1, 1916, and the remainder of the exchange tickets on January 1, 1920, when it is hoped that the Delivery Loop will be in full operation, thus furnishing such added carrying capacity as will avoid any undue congestion in the delivery district. On and after January 1, 1916, one free transfer will be allowed in a forward direction to each passenger using surface lines exclusively at any point where surface lines intersect outside of the delivery district as above defined. On and after January 1, 1920, one free transfer will be allowed in a forward direction to each passenger using surface lines exclusively at any point in Philadelphia where such lines intersect. In consideration of which the City will surrender to Company accrual in sinking fund, and permit the Company to postpone future payments to the





sinking fund for ten (10) years from July 1, 1914. The amount so surrendered and postponed to be made up by such larger annual payments by the Company after the aforesaid ten (10) years as will be required to produce the same amount in sinking fund at the expiration of the 1907 contract extended for seven (7) years as would, with interest included, have been produced by the original sinking fund payments at the end of the fifty (50) year term. Further, the City will relieve the Company of the payment of approximately \$116,000 a year, tax on dividends, for a period of six (6) years, beginning January 1, 1915.

#### Improved Surface Routing--

The Company to have, forthwith, authority to make such changes in its routes and lines as will enable it to take advantage of the economics which can be gained from the substitution of free transfers for exchange tickets.

#### Arbitration--

In case of any dispute arising under the agreement, the question shall be arbitrated by one representative each of City, Company and Public Service Commission, whose findings shall be subject to review and final decision by the Public Service Commission.

#### 6- Public Necessity for High-Speed Lines.

The City has determined the necessity and propriety by a thorough study of the subject.

"The City occupies a wide area as result of which intra-communication involves comparatively great distances. There are few wide or diagonal avenues so that surface car lines are generally indirect and the movement of cars is impeded by vehicles and by the necessity for frequent stops at cross streets. These conditions impose great inconvenience on the citizens of Philadelphia who are obliged to travel between different points in the city on an average of twice every three days. They further restrict the area of the City which is conveniently available for residential purposes.

The Market Street subway-elevated line now enables people to travel about 6 miles westwardly in 30 minutes, whereas the existing facilities enable passengers to travel less than 4 miles in any other direction in 30 minutes.

Director Taylor states that "the entire local transportation system must be operated as a unit to best serve the public in affording continuous and economical transit from each section of the City to each other section of the City.

Passengers will walk regularly to Rapid Transit lines only for a distance of about 1/2 mile. Therefore, a rapid transit line operated independently will serve a comparatively restricted area and tend to concentrate population in that area.



It is not feasible to build subway or elevated branches to build subway or elevated branches to spread out the sphere of usefulness of rapid transit facilities to the population which supplies traffic to load the main rapid transit lines. Consequently the functions of gathering and distributing traffic in the residential district are best performed by intersecting surface lines, which being comparatively inexpensive in construction, can be extended over a wide area.

Stopping at every street corner, surface lines transferring with the rapid transit trunk lines, serve as gatherers and distributors of rapid transit passengers, in the territory through which they run, better than branch high-speed lines with stations from 4 to 6 blocks apart, on which very frequent headways are not practicable and which could not be financially supported by the traffic.

The existing surface system occupies most of the streets suitable for tracks in the built-up districts. With some extensions and alterations it is equipped to furnish the transfer-feeder service necessary for the proposed rapid transit lines.

Further, the existing Market Street subway-elevated line should be a component part of any high-speed system. So present surface lines, operated as gatherers and distributors of rapid transit passengers are, therefore, essential to a system which will give adequate service to the greatest number of people and to the broadest area. The rapid transit lines of such a system forming the trunks or main stems and the transfer surface lines constituting the limbs of branches.

## 7 - Time Saving.

Now the shortest time of transit to West Philadelphia is by way of the subway-elevated, operated at any average speed of 16 miles per hour.

In the remainder of the city, the time of transit now is that of surface hours, operated at an average speed of 8 miles per hour.

The time zone of from 10 to 20 minutes extended west about 5 miles from City Hall. Five miles north or south on surface lines requires 30 to 40 minutes now. With the projected high-speed lines built and in operation, the 10 to 20 minute zone will be extended to 5 miles north of City Hall and to League Island on the South.

The projected subway and elevated line will reduce the time in regard to travel as follows:

From City Hall	Minutes		Minutes Saving in round trip
	from	to	
League Island	28	17	22
Olney Avenue	43	22	42
Rising Sun Avenue	42	22	41
Germantown	46	31	29
Cheltenham Avenue	48	28	40
Kensington	30	17	26
Frankford	55	30	50









Cash Value of Time-Saving by Rapid Transit, Report of 1913

Years to June 30th	Time-Saving minutes		Money Val. at 5¢ per hr.	
	1913	1921	1913	1921
N. Broad Line	275,377,000	420,600,000	689,000	\$ 1,050,500
S. Broad Line	67,381,000	104,000,000	168,000	260,000
Frankford Line	108,467,000	151,000,000	271,000	377,000
Darby Line	48,941,000	10,000,000	122,000	250,000
TOTAL	500,166,000	775,700,000	1,250,000	\$ 1,938,500
Value C.p. at 5%			\$25,000,000	\$38,780,000

The capitalized value of the estimated money value of the total saving in 1913 is \$25,000,000 and in 1921 is \$38,000,000 nearly the cost of its Broad Street Line.

8 - Density of Population and traffic facilities therefore-

U.S. Census.	POPULATION			
	New York	Chicago	Phila. Met. Dist.	Boston
1860	1,385,394	123,821	663,686	407,960
1870	1,840,968	317,572	799,940	563,005
1880	2,425,888	536,743	1,022,428	769,733
1890	3,241,750	1,163,100	1,279,878	1,002,288
1900	4,492,771	1,793,932	1,599,696	1,293,694
1910	6,313,207	2,340,627	1,940,833	1,573,345

ESTIMATED POPULATION, PHILADELPHIA

YEAR	Metropolitan increases past decade Sixteen-mile radius	Population	
		Metropolitan Area	Within City Limits
1920	375,000	2,316,000	1,825,000
1930	395,000	2,711,000	2,108,000
1940	405,000	3,116,000	2,391,000
1950	408,000	3,524,000	2,669,000
1960	402,000	3,926,000	2,936,000

LAND AREA AND POPULATION DENSITY OF METROPOLITAN CITIES

	Land Area Square Miles	Population Density per Acre	
		1900	1910
New York	556	12.6	17.7
Chicago	432	6.5	8.5
Philadelphia	767	3.3	4.0
Boston	605	3.3	4.1





POPULATION OF METROPOLITAN PHILADELPHIA BY MILE ZONES FROM CITY HALL			
Mile Zone.	1910 Population	Land Area (Acres)	Density of Population per acre of land area.
1	140,000	1961	71.4
2	429,000	5013	85.6
3	388,000	8815	44.0
4	342,000	12666	27.0
5	152,000	15468	9.8
6	95,000	20005	4.7
7	96,000	24566	3.9
8	48,000	28538	1.6
9	36,000	32596	1.1
10	35,000	36523	1.0
11	17,000	44362	0.4
12	29,000	44742	0.6
13	27,000	48651	0.6
14	23,000	52985	0.8
15	36,000	57114	0.6
16	28,000	60871	0.5
TOTAL	1,941,000	490880	4.0

There are enormous areas of undeveloped land surrounding the greater portion of the built-up section of Philadelphia within the city limits. The city has been spending millions of dollars in building streets and boulevards in every direction through these areas which still remain undeveloped on account of inadequate transit facilities and the vast investment made therein by the city is thus practically idle and non-producing. The projected subway and elevated lines will make these areas available to the great army of working people who are now being crowded together in the already congested districts of the built-up portion of the city. Apartment and two family houses are becoming common and the tenement question is one of the most important NOW confronting the City. The establishment of adequate rapid transit facilities will relieve the intolerable congestion on surface lines serving the nearby undeveloped areas and will moderate the excessive time, cost and inconvenience in traveling to and from the more remote undeveloped areas by surface lines which are not capable of providing proper service for long distance travel.

The improvement in transportation facilities in point of time which will be effected by the entire rapid transit system as recommended by the Department of City Transit is illustrated on the map accompanying this application as Exhibit "J".

The population of Philadelphia increases by more than 30,000 per year, and the city wishes to extend to its new population the traditional and unique advantages of individual homes.



The density of population in 1910, within various zones or rings, centered at City Hall, was as follows:-

<u>Radii of Ring</u>	<u>Density of Population per Acre of Land Area 1910</u>
0 to 1 Mile	71.4
1 to 2 Mile	85.6
2 to 3 Mile	44.0
3 to 4 Mile	27.0
4 to 5 Mile	9.8
5 to 6 Mile	4.7

It is thus seen that the comparatively high density is in general within the area which can be reached in 40 minutes from City Hall. If it be made possible to travel six miles instead of four in 40 minutes, an enormous area will be made available for city development. If this area be not made available, any future growth of the city will result in greater density and congestion and the evils which go with it.

This City has for years been expending millions of dollars of the taxpayers money in building parks, playgrounds and other municipal recreation centers, many of which are not accessible to the great majority of the people of Philadelphia.

A 5-cent fare and modern high speed lines will make every place of education, amusement and recreation in the City available to the entire population.

Every man, woman and child in Philadelphia is a part owner in these municipal properties; they feel a just pride in their ownership. The people justly demand the right of ownership, namely; the right of access to and use thereof, which is now denied many of them by inadequate transit facilities.

It is unfair that the working people in the densely populated sections of the City, who have no money to spare and little time for leisure, should be called upon to contribute their share in taxes toward the upkeep and enlargement of parks and other centers of recreation and education, the advantage of which is denied them by discriminatory and inadequate transit facilities.

The great areas in the central business district and the street railway tracks therein are already crowded nearly to their capacity, and looking forward a few years, such congestion will become a hindrance to the growth of the city and to the comfort and convenience of the people. Such a condition of street congestion makes it difficult to maintain regularity of surface car schedules and will have the effect of continually reducing the average speed of surface cars. It further greatly increases the accident risk to pedestrians, occupants of other vehicles and to surface car passengers themselves.





9 - Capacity at Present and Recommended Lines -

The present capacity of the delivery district, surface car tracks below Eighth and Sixteenth Streets inclusive is 723 cars per half hour. On the days of observations 533 cars were actually passed over these tracks during the maximum half hour, notwithstanding that the traffic was abnormally light on account of the severe business depression and that in addition a considerable portion of the traffic was diverted by the jitney buses. With increasing congestion of other vehicles, the surface car capacity will tend to decrease. On the present basis of capacity, however, it is to be seen that only 36% additional traffic can be accommodated. At 4% increase per year, which is expected by officials of the Philadelphia Rapid Transit Company, the capacity of these tracks would, therefore, be reached within nine years, assuming that cars can be uniformly distributed and substantially perfect schedules maintained.

The capacity of the proposed rapid transit lines through the business district on the basis of 10-car trains and one and one-half minute headway is as follows:-

N. Broad Street,	800	Cars	per	hour
S. Broad Street	400	"	"	"
Frankford	400	"	"	"
Darby	400	"	"	"

2000

with a loading of 86 passengers per car - 172,000 passengers per hour. The present Market Street Line is included at 400 cars per hour. With the addition of Chestnut Subway, the total capacity would be 2400 cars per hour - 206,000 passengers per hour. The present Market Street subway is operated with 10-car trains on two minute headway - 180 cars per hour = 18,000 passengers per hour, or less than one-half its possible capacity.

10 - Findings of Fact and Relevant Representations of applicant.

The City represents:

That it is necessary and proper for the City itself to furnish the money for and to construct the subway and elevated system hereinafter described. The reasons for such necessity and propriety are as follows:

The direct net income produced by the projected system will not be sufficient to pay the capital charges for several years after the beginning of the operation. It is therefore improbable that a private corporation would be able to undertake such an investment. The City will be easily able to carry the direct deficits in the early years of operation because of the great collateral benefits, principal of which will be the increase in taxes due to the increases in taxable values created by the new system.



Public Reports disclose the fact that in New York the abnormal increase in real estate values, following the construction of the original system of subways and elevated railways undertaken by the city, amounted to far more than the total cost of that entire rapid transit system.

In Philadelphia, land in the 46th Ward which lies west of 45th Street and south of Market Street, was developed 12 years ago. The assessed valuation of taxable real estate in this ward now amounts to \$35,263 per acre. The assessed valuation of taxable real estate in the 42nd Ward, which includes all of the North Broad Street district above Wingohocking Street, and which has not the advantage of rapid transit facilities, is only \$6,658 per acre.

The 46th Ward has a population of 31 people to the acre, while the 42nd Ward has a population of less than 6 persons to the acre.

The city can secure the funds for the construction of the proposed system at substantially lower rates of interest than a private corporation and thus the City and its citizens may obtain greater accommodation and convenience for the same cost.

That, the traffic of the City will support the investment proposed to be made by the City.

That in all other modern cities of the world of the size of Philadelphia, and in many smaller, the necessity and propriety of high-speed transportation have been recognized and facilities therefor have been provided.

For 20 years the Cities of New York and Boston have been committed to the policy of participation in transit development and at present time are in the midst of large additional expenditures. Chicago enjoys the service of 144 miles of elevated railway and the Harbor and Subway Commission has recommended the expenditure by the city of \$96,000,000 in subways.

#### The General Design of proposed Structures.

1 - The general design for construction and equipment is as follows:

- 1 - Minimum radius of track curve 165 ft.  
Maximum ascending grade 5%
- 2 - 12-5 ft. headroom over top of wall for subways  
12' track centers for subway.
- 3 - No grade crossing in subway.
- 4 - Steel frame construction for side walls and roof of subway.
- 5 - Subway floor finished in concrete and rails laid on short fixed ties without ballast.





- 6 - Solid Floor construction for elevated lines.
- 7 - Open cut on South Broad Street below Bigler Street
- 8 - Type of car generally similar to present Market Street subway-elevated car with three wide doors spaced more efficiently.

OVERHEAD CHARGES -

Item.	Subway	Elevated	Equipment
1 - Incidentals and contingencies	10%	7-1/2%	5%
2 - Engineering and superintendents	10%	7-1/2%	5%
3 - Organization, Administration and Financial Expenses	3%	3%	7-1/2%
4 - Interest during construction	7%	7%	2-1/2%
TOTALS	30%	25%	20%

The engineering and superintendency on the New York Rapid Transit System cost 7.9% of cost of contract work; 10.5% on Boston Subway.

The cost of organization and administration and financial on New York System was 2%. Interest during contract cost 6.4 % in New York and 8% in Boston.

The time of contracts of the proposed Philadelphia Elevated structures is 2 years (Traffic Lines) and the subway 30 months (under City Hall).

The cost of the subway is estimated at \$1,000,000 per mile of single track. The cost of the elevated track is \$400,000 per mile.

City Hall Station

1 - The section of the Broad Street Subway where it is desired to commence the construction, and the contract for which should be placed first, is the portion of the line extending from the North side of Filbert Street to the South Side of South Penn Square, which is a little over seven hundred feet long and includes the whole of a station located under the west side of City Hall to be designated City Hall Station.

Because the location involves in the construction the work of underpinning both a portion of City Hall and parts of the structure of the present Market Street Subway under which it passes in Filbert Street and in South Penn Square, the progress of the construction in this section will be slower than in any other section of the line, and for this reason as well as because of the further fact that this station will be necessary to the commencement of operation of the line it is desirable that work shall be commenced at this point.

2. This section is a part of the 4-track portion of the line providing the station with two island platforms which will permit it to be used as a reservoir station for loading and unloading passengers, and will facilitate a future connection with a 2-track subway line is the Parkway.

...Solid Floor ...  
...entirely.

- Item.
- 1 - Incidentals and contingencies
  - 2 - Maintenance
  - 3 - Organization, Administration and Financial Expenses
  - 4 - Interest during construction

New York System was 2.1. Interest during construction and administrative expenses

City Hall.

The cost of the subway is estimated at \$1,000,000 of single track. The cost of the elevated track is \$100,000 per mile.

City Hall Station

...commence the construction, and the contract for this should be placed first, is the portion of the line extending from the City Hall Station to the South side of South Street, and the little over seven hundred feet between City Hall Station and South Street.

Because the location involves the use of

...the present street shows under which it passes in Liberty Street and in South Penn Square, the progress of the construction is slow. It will be slower than the other sections of the line. It is estimated that it will be necessary to have the line in operation on the line at this point.

2. This section is a part of the subway system. It is a 2-track subway line is the



3. The station plans provide for six points of entrance or exit, at four of which will be installed mechanical stairways or escalators.

4. Galleries and a mezzanine floor will provide for transfer of passengers across tracks and permit connections to be made with the present Fifteenth Street Station of the Market Street Subway, and with the local or subway-surface tracks of the Market Street Subway at the Broad Street intersections, and also with the Broad Street Station of the Pennsylvania Railroad.

5. The present authorization for commencement of construction does not include a loop of the Broad Street Subway line within the delivery district, and until such time as a loop is constructed the City Hall Station and the contemplated station in Broad Street from Walnut Street to Chestnut Street will serve as reservoir stations. The four-track construction of the subway will extend through these stations which will each have two island platforms, and with cross-overs to be provided either can be used as a terminal station to facilitate operation of a portion of the lines before completion of the whole.

#### Station on Frankford Elevated Line.

The Frankford Line to be constructed this season will be commenced at Front and Callowhill Streets and terminate in Frankford at Unity Street. For the length of about 5.5 miles the line will consist of two tracks on an elevated structure supported by 2 columns located at the curb line. This form of construction is adopted so as not to interfere with the surface tracks in the streets below. The vertical headroom between the surface tracks and east and the underside of the elevated street will be not less than 14 feet.

This line will pass over the North Penn Branch of the Philadelphia and Reading Railway at Willow Street with a vertical clearance of 21 feet. Also over a branch of the P & R in Germantown Avenue at Front Street with a vertical clearance of 21 feet. Again over the P. & R. tracks-Richmond Branch at Kensington- the elevated structure will go over the same tracks with a vertical clearance of 21 feet. Again at the Pennsylvania Railroad Connecting Lines, the elevated tracks will pass over the same railroad tracks. The detailed plans for this line have not yet been prepared. As the line is to be built at present there will be 8 stations. The platforms will be 500 feet long, and provides for 8-car trains.

The location of the stations is as follows:

- 1 - Front and Green Streets.
- 2 - " " Girard Avenue
- 3 - " " Berks Street
- 4 - " " Dauphin Street
- 5 - Kensington Avenue, Somerset and Cambria.
- 6 - " " and Allegheny Avenue.
- 7 - " " and Tioga Street
- 8 - " " and Torresdale Avenue





Posts carrying the elevated structures will be along the curb. Wires, poles, etc. will have to be removed from the street. Stations will be erected on the side of streets. Solid concrete dirt and stone ballast to reduce noise to a minimum.

### Equipment.

The lines proposed are intended primarily for passengers; no special provision for handling baggage, freight, express or mail. The train is local in character. The cars will be not less than 60 feet long, have three doors on each side operated by air. All cars to be motor cars, equipped with 2 motors approximately 125 H.P. or heavier, standard rating and multiple air-brake system. Weight of cars 50 tons unloaded. Gauge of train 5'2-1/4", same as present Walnut Street Subway-elevated. The car will be 9 feet wide over all, about 4 feet (square) per passenger standing room, about 145 passengers.

### Drainage System

There are large areas west of Broad Street that drain into the Delaware River. The main sewer crosses Broad Street. Some of them are as large as 18 feet in diameter. The subway will dip under the sewers so as not to interfere with them.

The subway will be drained by a series of wells from which the water will be pumped into a nearby sewer.

### Ducts

Space for carrying electric cables for subway operation and for lines now in the street will be provided in the side walls near the top of the subways. Manholes will be extended to the surface.

### Refuge Bays.

There will be a clear space of 12" between the outside of the car and the side walls of the subway. Refuge Bays - safety niches, are formed between the columns by arching of side walls. This additional space is 16". Emergency exits are provided between stations. The use of steel columns and roof beams between which jacks arches if convenient are turned to form roof and side walls, adopted for economy and quickness of construction.

### Water Proofing.

The roof will be water proofed; also, the side walls and bottom where the elevation is below water level.

### Ventilation.

Ventilation openings or gratings will be placed in sidewalks near curbs, and approximately midway between stations. Arrangements will be made so that fans can be installed later should this be found desirable, when the subway has reached its full carrying capacity.



### Voltage and Third Rail.

Voltage for operation will be 650.

Standard form of protected Third Rail will be used similar to that at present in the Market Street Subway Elevated.

### Equipment.

The equipment is to be furnished by the operators. It will compose:-

- a - Rolling stock
- b - Low tension feeders.
- c - Sub-stations
- d - Yards, shops, officers etc. necessary therefor,
- e - Track, signals and Third Rail.
- f - Lighting and station equipemtn
- g - Miscellaneous operating equipment.

### Signals

Full automatic signals with automatic stop, arranged to permit the operation of a maximum of 40 eight-car trains per hour.

### Lighting

Incandescent lights.

## 2 - Present Contracts.

The Department of City Transit porposes to expend the \$6,000,000 appropriation to the best advantage, and will make the money go as far as possible towards building the elevated structure from Arch Street to Rawn Street, and north and south in Broad Street from the City Hall.

However, a beginning must be made, at some point, and the point for beginning has been set by the City at City Hall. According to the plans authorized and approved by Councils, a station is to be built under City Hall between Filbert Street and South Penn Square. One of the contracts now being advertised, calls for bids on the subway elevated near City Hall Station. It is expected, if favorable bids are received, that this portion of the subway will be finished for less than the \$3,000,000 the amount of money allotted for it.

It is expected that the \$3,000,000 allotted for the electric structure will complete the same between Callowhill Street and Bridge Street, a distance of about 5 miles in length, and leave a balance.

The detailed plans and specifications of the superstructure have not been advertised. The bids now advertised for the electric lines, comprise the foundations for its columns only.

Then will follow immediately advertising of bids for the superstructures.





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On January 3, 1916, Mr. A. Merritt Taylor resigned as director of this department, and until February 15th, Henry H. Quimby, the chief engineer of the department, was acting director. On Feb. 15th Mr. William S. Twining, who had been one of the engineers representing Messrs. Ford, Bacon & Davis (the consulting engineers to the department under Mr. Taylor), was appointed director.

Having been connected with the Philadelphia Rapid Transit Company and its underlying companies from 1893 to 1910 as the chief engineer of the existing system, the new director was well acquainted with the details of the existing system, and had designed and constructed the Market Street Subway and Elevated Line during the period of 1902 to 1908.

Through his connection with the Department of Transit from 1912 to 1915, he was familiar with the program of rapid transit development from its inception. There were many things in the program as it stood on January 1, 1916, which he did not believe to be in the interest of the city, and in accepting the office he stipulated that he should be allowed to publish a report setting forth his views and the points wherein he could not endorse or approve some of the statements and plans of his predecessor on which the program as it stood in 1916 was founded.

Accordingly the director, immediately on assuming office on February 15th, prepared such a report, which was published and submitted to Councils on March 29th, 1916. This report formulated and recommended a modified program of transit development founded on business principles. It was a plan which aimed to better fit the program of development to the city's requirements, and to keep the resulting financial burden, which was certain, within safe and reasonable limits. An abstract of this report is shown herewith as Appendix A. This program was based on the lines built and owned by the city being equipped and operated by the Philadelphia Rapid Transit Company, as was the program recommended by the former director.

The new program was immediately and publicly condemned in unmeasured terms by the former director, who regarded it as his privilege and duty to defend the plan and propaganda of transit development which he had promulgated and for which he stood sponsor. The new director's motives were questioned, and the people were misled into regarding the transit program as a personal or partisan matter between the new director and the ex-director of this department.

This condition was unfortunate, but rapid transit development made substantial progress during the year 1916, notwithstanding the many difficulties against which the director was forced to contend. These difficulties were much increased by the antagonistic attitude of the ex-director, who actively opposed and criticized any exercise of initiative or any independence of thought and action on the part of his successor.

In addition to the difficult and unfortunate situation created during the current year by the controversy with the former



director as to the merits of the respective plans proposed, there existed a condition of the public mind which the former director had created during a four-year campaign in which he had energetically carried on a popular propaganda as to transit development in Philadelphia which rested in improbable assumptions and unsupported statements, which he induced the public to regard as established facts.

The basis for such an attitude of the public mind was:

1. Because of the seeming indifference to or acquiescence in the propaganda shown by the Philadelphia Rapid Transit Company, who made no apparent effort to combat it or to make public and emphasize the fact that the propaganda was based on the leasing of a burdensome high-speed system (to be constructed by the city) to the Philadelphia Rapid Transit Company, upon the assumed terms of an impossible lease. This silence, or lack of opposition, on the part of the company (whose co-operation was absolutely necessary), produced in the public mind the impression that the plan proposed was feasible and acceptable.

2. Because the public assumed that as the engineering firm of Ford, Bacon & Davis - a firm of high standing in engineering matters had been employed by the Department of City Transit as consulting engineers during the ex-director's term of office, they therefore approved all of the acts, statements and propaganda of the director. Such was not necessarily the case, as after the organization of the department in July of 1913, the services of the consulting engineers became advisory only and applicable to only such matters of design, construction and operation of the proposed transit system as might be referred to them. They had no interest or concern in the personal aspirations or aims of the ex-director, but supplied him with data as needed, based on assumptions dictated by him. The engineers were not asked to approve or disapprove of his propaganda, but the fact of their being in the employ of the department gave many people the impression that they originated or stood sponsor for the assumptions on which the propaganda was based.

This transit propaganda, which has been published in the official reports and documents of the department during the past three years, taught the people that they might have any desired number of new rapid transit facilities, abolition of 3-cent exchange tickets, free transfers between high-speed lines, between surface lines, and between high-speed and surface lines, all for one 5-cent fare, without any increase in the tax rate, and taught them that they should expect to be transported "quickly between any two points within the city, with any number of transfers in a forward direction, all for one 5-cent fare."

The developments of the year have proved that the modified program outlined by the director in March, 1916, although not adopted by Councils, was entirely in the interest of the city as a whole.

#### Progress of Subway Construction.

On August 19th, 1915, the department awarded the contract for the section of the Broad Street Subway running underneath a portion of the City Hall, designed as Contract No. 101. This contract was held





by the Keystone State Construction Company, who, shortly after beginning work, discovered that the foundations underneath the City Hall were in very bad condition, and that before carrying out the contract which had been awarded to them it would be necessary to reconstruct the portions of the foundations of the City Hall which would be affected by the contract.

The contractor claimed that the reconstruction of these foundations was not a part of his contract, and that such reconstruction was not contemplated at the time the work was awarded to him. He further claimed that it was practically impossible to construct the subway roof beneath the City Hall in the manner proposed by the department. The contract provided that should modifications in the design of the roof be desired by the contractor the cost of such changes as were approved by the department should be adjusted in accordance with the relative quantities in the respective plans on the basis of the unit prices quoted, and in accordance with the provisions of the contract the contractor submitted an outline plan showing the changes which he advocated making in the design of this station in order to permit of its construction.

Regarding the contractor's claims and proposed change of design the department had taken the position that the reconstruction of the City Hall foundations, if necessary, was simply an incidental to the contract and the contractor should have included such work in the lump sum price of the work; that the changes in design proposed by the contractor were not ordered by this department, being necessary only to facilitate the contract work; that the department would approve them only upon the condition that the modified structure be made equivalent in stability and stiffness to the contract plans, and that the price to be paid for the work should not exceed what it would be for the department's design, and that this be made a matter of record before the modified design was approved and the construction under the modified design proceeded with.

The contractor and the department had reached substantially a deadlock over the question of the contractor's obligations and responsibilities under the contract, and such was the condition which confronted the director when he assumed office on February 15th.

The director, who had never regarded with favor the plan to place the station underneath the City Hall, consulted with the Mayor in regard to the situation, and explained to him the advisability of changing the alignment so as to remove the station and most of the line from beneath the City Hall, thereby gaining many advantages, and removing at the same time the greater part of the unforeseen complications involved in the construction of the line beneath the City Hall.

The director's reasons for advocating the change of line and the removal of the station from beneath the City Hall were set forth fully in the report to Councils made on March 29th, 1916, an abstract of which appears as Appendix A of this report.

The Mayor was convinced of the desirability of this change, although it involved a radical change in the contract with the Keystone State Construction Company and in the plan which the former



director had strenuously advocated.

He, therefore, on February 24th, approved of the proposal of the director that work on the contract be suspended pending the completion and submission to Councils of the report above referred to. In order to verify the report which had been published as to the condition of the foundations of the City Hall the Mayor appointed a commission of representative engineers connected with other departments of the city to examine the foundations of the City Hall, investigate the advisability of removing the proposed station from beneath the hall, and report their recommendations to him as soon as possible.

This commission consisted of Mr. George E. Datesman, member American Society of Civil Engineers, director of the Department of Public Works; Mr. George S. Webster, member American Society of Civil Engineers, director of the department of Wharves, Docks and Ferries, and Mr. Chester E. Albright, chief engineer and surveyor of the city. The director and the chief engineer of the Department of City Transit were instructed to co-operate with these engineers, and supply them all data and information in the possession of the department.

This commission investigated the situation thoroughly, and on March 28th, 1916, reported to the Mayor as follows:

REPORT OF COMMISSION APPOINTED TO CONSIDER THE  
ENGINEERING PROBLEMS CONNECTED WITH THE  
QUESTION OF CONTINUING THE CONSTRUCTION OF THE BROAD  
STREET SUBWAY UNDER CITY HALL.

Philadelphia, March 28, 1916.

Hon. Thomas B. Smith,  
Mayor of Philadelphia.

Dear Sir: Your commission, appointed to consider the engineering problems connected with the question of continuing the construction of the Broad Street subway under City Hall, as now under contract, or the adopting of the alternative of relocating the station at a point north of City Hall, and changing the width and alignment of the subway in Broad Street so that it will pass under only the southwest corner of City Hall as made possible by the proposed relocation of the Parkway subway south in Sixteenth Street, begs leave to report:

The merits of the present and the proposed locations of City Hall station were alone considered without studying the other features of the transit plans, excepting insofar as they affect the location of such station.

We have compared the plans of the work now under contract, which extends from Filbert Street to South Penn Square, with the plans for the proposed modified lines and station location in this vicinity, and have inspected the site of the work and noted the conditions of the working and have examined the character of the walls and





foundations of City Hall so far as they have been exposed by the excavations already made. These excavations extend over the whole contract area, except under the walls of the building and under the Market Street subway, no underpinning of either having yet been done. The earth is already removed to as great a depth as is considered safe before underpinning is done, and therefore most of the walls in question are visible. In a number of places the foundation walls, which are of stone, are of a very inferior quality of construction, but most, if not all, of such walls will have to be removed in the underpinning operation and the weight of the building transferred to the roof and walls of the subway.

As a result of the examinations we are of the opinion that the construction of a four-track subway under City Hall, unless obstacles now unforeseen are encountered, can probably be accomplished by the exercise of extreme care and the expenditure of considerable time. The construction of a two-track subway under the southwest corner of City Hall, as proposed under the project which re-routes the Parkway line under Sixteenth Street, can be more readily accomplished as the area to be occupied is but one-eighth of that occupied by the present plan. In all work of this character, however, there is an element of risk, and the risk to City Hall under the present plan is considerably more than eight times as great as the risk involved under the proposed plan. The present plan of the City Hall station contemplates the future extension of the Market Street subway under City Hall on the line of Market Street, thus introducing additional risk. The operating conditions of the subway with a station under City Hall would be unfavorable as compared to those under the proposed plan. The proposed location will give a better spacing of stations for both delivery of passengers and operation of trains, and less depth below the surface of the street, and will give better underground street crossing facilities, thereby reducing danger of accident. The station under City Hall would be so close to the Chestnut Street station that trains would have to move into and out of both stations simultaneously, because there would not be a full train length between them-a condition that would be a perpetual handicap to the operation of the line, and one which the proposed plan obviates. Also the discharge of the Market Street quota of the Broad Street subway traffic into the already crowded court-yard of City Hall would produce serious congestion there. The new location would distribute the passengers to Arch Street, Filbert Street and Market Street on both sides of Broad Street before they emerge to the surface of the street. A reduction in cost and gain in time of construction, we believe, will result from the adoption of the proposed plan without detriment to the service - on the contrary, to its improvement.

In view of the premises, the opinion of your commission is that the present plan for a station under City Hall should be abandoned, that a station should be located north of City Hall, and that the subway be constructed as now proposed under Broad Street, passing west of and under the southwest corner of City Hall.

The following are some of the salient points upon which these conclusions are based:



### Present Plan

1. Four track subway and station, with two intermediate platforms under City Hall.
2. Total width under City Hall, 106 feet.
3. Length under City Hall, 460 feet.
4. Area under City Hall, 43,500 square feet (about 1 acre).
5. About 1000 cross girders (difficult to place) to support walls under City Hall, some 4 feet in depth, weighing 8 tons each.
6. 103 interior piers (4 x 6 feet) supporting City Hall, two-thirds of which form obstructions in passenger platforms.
7. Piers and side walls, 2300 linear feet of foundation, to be built below ground water line; average depth below ground water line, 14 feet. These foundations will be about 60 feet below the surface of the sidewalk.
8. Depth of platform below sidewalk at City Hall station, 42 feet.
9. Risk of settlement and serious injury to City Hall much greater than in proposed plan.
10. Clear distance from City Hall station to Chestnut Street station, 230 feet, creating unsatisfactory operating conditions (train length that must be provided for, 550 feet.)
11. Full use as a transfer station pre-  
indicated upon the eastward extension of present subway platforms of 15th Street station on Market Street through

### Proposed Plan.

1. Two-track subway under Broad Street, two other tracks under Sixteenth Street; the former passing under the southwest corner of City Hall. No station under City Hall.
2. Total width under City Hall, 42 feet.
3. Length under City Hall, 134 feet.
4. Area under City Hall, 5600 square feet (1 1/2 acre).
5. About 125 cross girders to support walls under the southwest corner of City Hall.
6. Continuous interior wall in place of piers to support City Hall.
7. Piers and walls of about 402 linear feet to be built to the same depth below ground water line.
8. Depth of platform below sidewalk at station north of City Hall, 35 feet.
9. Risk of settlement and serious injury to City Hall but a small percentage of present plan.
10. Clear distance from relocated station to Chestnut Street station, 880 feet, providing normal operating conditions.
11. Independent of the extensions of the 15th and Market Streets station platforms and of the extension of the Market Street





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|--|--|
| 11. under City Hall, and the extension eastward of the present Market Street subway under City Hall, with no assurance of its construction by the company. | 11. subway eastward through under City Hall.   |
| 12. A transfer station under City Hall will focus travel to the most congested point in the city.  | 12. Equivalent facilities for transferring to be provided at points of less congestion.  |
| 13. Will increase the present congestion on the surface in and about City Hall, and consequent danger to passengers in crossing streets in this vicinity.  | 13. Tends to prevent further congestion within and about City Hall by distributing passengers north and south thereof over greater areas.  |
| 14. Time to be occupied in construction is problematical.  | 14. Time to be occupied in construction of the relocated lines will be considerably less than is required under the present plan, for the reason that it is a two-track section only and a much larger part of the relocated line lies outside of the City Hall. |
| 15. Cost of construction of City Hall station under the present plan is covered by the provisions of the existing contract.                                | 15. The cost of the relocated lines on Broad Street and Sixteenth Street, we believe, should total less than the cost in the present location.   |

Respectfully submitted,

(Signed) G. S. WEBSTER,  
Director, Department of Wharves, Docks and Ferries.  
(Signed) Geo. E. DATESMAN,  
Director, Department of Public Works.  
(Signed) WM. S. TWINING,  
Director, Department of City Transit.  
(Signed) CHESTER E. ALBRIGHT,  
Chief Engineer, Bureau of Surveys.  
(Signed) HENRY H. QUIMBY,  
Chief Engineer, Department of City Transit.

This report, together with the report of the director (see Appendix A), was submitted to the Finance Committee of Councils on March 29th, at a meeting which had under consideration the loan ordinance introduced March 2nd, signifying the desire of the city to borrow \$86,800,000, of which \$35,000,000 was to have been set aside for the construction of transit facilities (see Appendix E.)

At this meeting great reluctance was shown by the committee as a whole toward making any modification of the plans spon-



sored by the former director, and at the next meeting of the committee, on April 3rd, an amended loan ordinance was reported favorably, which fixed a definite location for each line, set aside a specific amount to be used toward the construction and improvement of each line, and fixed May 16th as the date upon which the electors should vote upon the proposal to increase the city's indebtedness.

The vote of May 16th was 149,220 in favor of the proposed increase, 43,252 against the proposal. (See "City Ordinance calling for Loan Election" in Appendix E.)

Under the conditions of this ordinance it was practically impossible to modify the alignment of the subway until after the City Hall, hence on April 6th the contractor was ordered to immediately resume the work on his contract which had been suspended on February 24th. On April 10th the contractor replied that before resuming work the matters in dispute at the time of suspension of work should be disposed of and adjusted (see Appendix D).

As this dispute involved legal phases, the whole matter was referred to the City Solicitor on April 15th and 19th for an opinion (see Appendix D). This opinion of the City Solicitor was received on April 25th, and acting under this opinion, the director, on May 4th, again requested the contractor to resume work, at the same time authorizing the reconstruction of such defective foundations of City Hall as might be necessary in order to permit the carrying out of the contract, this work to be paid for as extra under the force account item of the contract, and deferring to subsequent negotiations the adjustment of the contractor's claims for reimbursement for extraordinary expenses incurred incidental to the suspension of work, such as the necessarily continued pumping to drain the excavations, the maintenance of shoring, watchmen, etc.

Work was accordingly resumed by the contractor and the reconstruction of the defective foundations was proceeded with. Later an agreement regarding the compensation of the contractor for interim expense was arrived at through investigation and ascertainment of the actual outlay involved in the delay, and the items of the adjustment are exhibited in the appended report of the chief engineer.

The rejection by Councils of the plan suggested in the report of March 29th, 1916, forced the department to make further studies in order to determine whether it might be possible to carry out the provisions of the ordinances as passed on July 20th, 1916, and yet avoid extreme and unnecessary complication in the connections to the loop, and choking effect of complex routing on the capacity of the city's system, and the objectionable grade-crossings which the Public Service Commission would probably refuse to approve, even though guarded by the best interlocking system obtainable.

These studies indicate the possibility of eliminating a part, at least, of these objectionable features with great advantage to the city's system.





EXTENSION OF FRANKFORD ELEVATED RAILWAY FROM BRIDGE STREET, FRANKFORD, TO RHAWN STREET, HOLMESBURG

A statement of the present status of conditions in connection with the extension of the Frankford Elevated Railway from north of Bridge Street, Frankford, along Frankford Avenue to Rhawn Street, in Holmesburg, is as follows:

Frankford Avenue, north of Bridge Street, Frankford, is physically opened to the width of 60 feet. On the confirmed plan Frankford Avenue is 70 feet wide between Bridge Street and Comly Street, 100 feet wide between Comly Street and Cottman Street, and 70 feet wide between Cottman Street and Rhawn Street, Holmesburg. In addition to the widening of Frankford Avenue, the confirmed plan also shows the alignment of the avenue improved and the grade changed to a very considerable extent. Between Comly and Cottman Streets the widening of Frankford Avenue is not equally on both sides of the street, and, in addition, a further complication is introduced by the position of the surface car tracks of the Frankford, Tacony and Holmesburg Street Railway Company. A bill read in place by Mr. Boal in Select Council on April 20th, 1916, and reported favorably by the Committee on Highways on July 6th, 1916, which appears in the Appendix to the Journal of the Common Council as Appendix No. 84, July 6, 1916, relates to the dispute with the Frankford, Tacony and Holmesburg Street Railway Company over the matter of paving.

An opinion was asked of the City Solicitor on September 25th, 1916, as to the rights of the Frankford, Tacony and Holmesburg Street Railway Company, and as to what steps should be taken in connection with the carrying on of the work of this department and that of the Department of Public Works, insofar as they related to the work on Frankford Avenue between Bridge Street, Frankford, and Rhawn Street, Holmesburg.

DEPARTMENT OF CITY TRANSIT

Philadelphia, September 25, 1916.

John P. Connelly, Esq.,  
City Solicitor,  
City Hall, Philadelphia.

Dear Sir:

Enclosed I am sending you plans Nos. 3187, 3188, 3189, 3190, 3191, 3192, 3193 and 3194.

No. 3187 is a general plan of the route, giving the profile and station locations as it is proposed to build the extension of the Frankford Elevated road from Dyre Street, the end of the present contract, to Rhawn Street in Holmesburg, the terminus specified in the present ordinance.

From these plans you will note that it is contemplated that the Survey Bureau shall widen Frankford Avenue, from its present



physical width of 60 feet, this widening being to 70 feet at the lower end and 100 feet between Comly Street and Cottman Street, and 70 feet again between Cottman Street and Rhawn Street. The line of the street is also changed considerably between Hellerman Street and Cottman Street, and the whole street will have to be put to the confirmed grade before it will agree with the official city plan.

On the plans accompanying this letter, you will note that in the portion between Comly Street and Cottman Street, where the Survey Bureau expects to widen and straighten the street, the columns of the elevated structure will go back of the present building line, and in a good portion of the route the surface tracks of the Frankford, Tacony and Holmesburg Street Railway Company will have to be relocated to accommodate the new street conditions and the elevated structure.

Application will be made shortly to the Public Service Commission for a certificate of public convenience for the building of this extension.

The ordinances under which this road has been constructed are dated January 22, 1891, and December 23, 1892.

The Department of Public Works has made an informal estimate of the cost of opening Frankford Avenue between Bridge Street and Cheltenham Avenue as \$25,000 to \$30,000. Between Cheltenham Avenue and Cottman Street as \$40,000 to \$50,000. No estimate appears to have been made as to the cost of opening and widening between Cottman and Rhawn Streets. Furthermore, the cost of repaving this portion of Frankford Avenue between Bridge Street, Frankford, and Rhawn Street, Holmesburg, after it is widened and regraded, is estimated by the Department of City Transit at about \$160,000 for granite block paving, or about \$110,000 for bituminous macadam.

The surface car tracks of the Frankford, Tacony and Holmesburg Street Railway Company are in the side of Frankford Avenue the greater portion of the distance, and they will have to be changed to conform with the new line and grade; also, the rail, which is a light "T" rail section, will have to be changed to a heavy girder section, and the overhead construction will have to be shifted so as to come underneath the elevated structure.

The property along this street at present is assessed as suburban property and the cost of paving cannot be charged to the owner under this assessment. It would seem that if the elevated is to be built in this section that the property certainly should be assessed at full city rates, thereby permitting the pavement cost to be charged against the abutting property.

The present paving on Frankford Avenue north of Bridge Street is in wretched condition, and apparently the first step will be the preparation of an ordinance authorizing the opening of the avenue to its greatest width. The second step will be the introduction of an improvement ordinance to authorize the Department of Public Works to enter into a contract for paving and grading Frankford





Avenue from Bridge Street to Rhawn Street to the established city grades with all the necessary drains and extensions - this ordinance will necessarily involve the settlement of the dispute which has continued for a number of years in regard to the obligations of the Frankford, Tacony and Holmesburg Street Railway Company operating the surface cars on Frankford Avenue in this section of the city.

As soon as the property is available and the street is graded this department is ready to let contracts for the foundations and superstructure of this extension of the Frankford Elevated. The foundations cannot be built in advance, as the change of grade in some cases would leave these foundations sticking up in the middle of the road 5 or 6 feet, and in many cases the foundations will interfere with the present surface car tracks of the Frankford, Tacony and Holmesburg Street Railway Company, so that some disposition must be made of these tracks before the Department of City Transit can proceed.

#### Light Shade As A Finishing Color For Frankford Elevated Structure.

The department has given considerable study to the matter of selecting a suitable paint as a finishing coat for the Frankford Elevated structure. With a view of adding to the general attractiveness of the structure, a paint light in color would seem to be most desirable. With this idea in view, experiments are being made for the purpose of determining the most satisfactory color.

#### General Statistical Work.

As in 1915, four men have been constantly employed during the current year on statistical work - compiling data to be used in perfecting an agreement with an operating company and arranging information for presentation to the public,

#### 1916 Transit Loan Bill.

March 2nd, 1916- Mr. Gaffney, in Common Council, read in place a bill entitled "An Ordinance signifying the desire of the corporate authorities of the city of Philadelphia to increase the indebtedness of the said city in the sum of \$86,800,000, "which included \$35,000,000" for the construction and improvement of subways, tunnels, railways, elevated railways, and other transit facilities."

Which was referred to the Committee on Finance.

April 3, 1916. - An amendment offered by Select Councilman Charles Seger, chairman of the Street Railway Committee, to increase the amount for transit purposes to \$100,000,000 and not apportion the amount by items to the different lines, was defeated in Council's Committee on Finance.

An amendment offered by President of Select Council, James E. Lennon, to increase the amount to \$57,100,000, was unanimously reported favorably by Council's Committee on Finance.

April 11, 1916 - Ordinance as amended (Appendix No.



79) signifying the desire of the corporate authorities to increase the indebtedness in the sum of \$57,100,000 for transit purposes was passed by Common and concurred in by Select Council.

Fixing the day, May 16, 1916, for holding an election for the purpose of obtaining the assent of the electors to such increase.

April 12, 1916. - Ordinance approved by the Mayor.

- May 16, 1916. - Election held. Question of authorizing additional indebtedness, including \$57,100,000 for transit purposes, carried by vote as follows:

In favor of said increase, 149,220; against said increase, 43,252; majority in favor of said increase, 105,968.

May 18, 1916. - Mr. Gaffney read in place a bill to authorize the creation of a loan of \$67,100,000, which included \$57,100,000 "toward the construction and improvement of subways, tunnels, railways, elevated railways and other transit facilities."

Which was referred to the Committee on Finance.

May 22, 1916. - Councils' Committee on Finance reported favorably the ordinance (Appendix No. 135) authorizing the creation of a loan, which included \$57,100,000 for transit purposes, and the report was accompanied by a resolution to publish a loan bill.

May 24, 1916. - Ordinance (Appendix No. 135), with resolution, laid over to be printed.

June 22, 1916. - Common Council bill passed (Appendix No. 135), which contained item of \$57,100,000 for transit facilities.

June 29, 1916. - Ordinance approved by the Mayor.

Chronology - 1916 Construction Ordinance.

June 1st, 1916. - In Common Council Mr. Gaffney read in place a bill entitled "As Ordinance to authorize the construction and improvement of certain subways, tunnels, railways, elevated railways and other transit facilities, as hereinafter set forth in detail, and providing for the payment of interest and sinking fund charges thereon."

Which was referred to the Committee on Finance.

June 29th, 1916. - Committee on Finance ask for the passage of this ordinance. Appendix No. 216.

July 6, 1916. - This ordinance was passed by Common Council and Select Council.

July 20, 1916. - Approved by the Mayor.

Chronology - 1916 Appropriation Ordinance.





June 1, 1916. - In Common Council Mr. Gaffney read in place a bill entitled "An Ordinance to make an appropriation to the Department of City Transit out of the \$67,100,000 loan authorized by ordinance approved June 29th, 1916, to be used toward the construction and improvement of subways, tunnels, railways, elevated railways and other transit facilities, and the payment of interest and sinking fund charges."

Which was referred to the Committee on Finance.

June 29th, 1916. - Committee on Finance ask for the passage of this ordinance. Appendix No. 206.

July 6th, 1916. - This ordinance was passed by Common Council and Select Council.

July 20, 1916. - Approved by the Mayor.

RECORD OF APPLICATIONS MADE TO, HEARINGS HELD BEFORE AND  
CERTIFICATES ISSUED BY THE PUBLIC SERVICE COMMISSION  
OF THE COMMONWEALTH OF PENNSYLVANIA.

Applications.

During the year four applications were made by the city of Philadelphia to the Public Service Commission of the Commonwealth of Pennsylvania for certificates of public convenience, as follows:

November 13, 1916. - Additional Station at Huntingdon Street and Kensington Avenue on the Frankford Elevated Railway.

November 13, 1916. - Double Track Surface Line from Frankford and Oxford Avenues Through the Thirty-fifth Ward to the City Farms."

December 28, 1916. - Continuation of the Frankford Elevated Railway from South of Dyre Street, Frankford, Northward over Frankford Avenue to Rhawn Street, Holmesburg.

December 28, 1916. - Subway Railway in Broad, Arch, Eighth and Locust Streets, also the Parkway, and an Elevated Railway in North Twenty-ninth Street.

Copies of the above-mentioned applications are shown as Appendix F.

Hearings.

Hearings were held before the Public Service Commission of the Commonwealth of Pennsylvania as follows:

January 7, 1916. - Rehearing held in Philadelphia on petition for approval of construction of portion of Frankford Elevated Railway from Unity to Dyre Streets.



December 11, 1916. - Hearing held in Harrisburg on petition for approval of construction of Additional Station at Huntingdon Street and Kensington Avenue, on the Frankford Elevated Railway.

December 11, 1916. - Hearing held at Harrisburg on petition for approval of construction of Double Track Surface Line from Frankford and Oxford Avenues through the Thirty-fifth Ward to the "City Farms."

#### Certificates Issued.

The Public Service Commission of the Commonwealth of Pennsylvania, after an investigation and hearing had on the respective applications (by its report and order made and entered) found, determined and ordered that certificates of public convenience be issued, evidencing the Commission's approval of the construction as petitioned in the applications as follows:

January 25, 1916. - Certificate was issued evidencing the Commission's approval of the construction of the portion of the Frankford Elevated Railway from Unity to Dyre Street.

December 11, 1916. - Certificate was issued evidencing the Commission's approval of the construction of the Additional Station at Huntingdon Street and Kensington Avenue, on the Frankford Elevated Railway.

Copies of the above-mentioned certificates are shown as Appendix G.

#### SUBWAY, ELEVATED AND SEWER CONTRACTS LET AND NOW PERFORMED.

Foundations for Frankford Elevated Railway  
Contract No. 502 - Foundations in Frankford Avenue, from South Side of Unity Street to South Side of Dyre Street.

A certificate of public convenience for this section of the Frankford Elevated Railway was issued by the Public Service Commission of the Commonwealth of Pennsylvania on January 25th, 1916.

The contract for this section of the concrete column foundations and piers was awarded to the low bidder, Edwin H. Vare, Lincoln Building, Philadelphia, on February 5, 1916. Aggregate of bid, \$23,870.

Except at the "Orthodox-Arrott" station, this is single column construction with the columns placed in the center of Frankford Avenue and necessitating the spreading of the Philadelphia Rapid Transit Company's surface tracks.

The following correspondence with the officers of the Philadelphia Rapid Transit Company explains the delay in the commencement of the construction of this section of the concrete column foundations and piers:





- 11 -  
Bourse Building

Philadelphia Rapid Transit Company,  
Eighth and Dauphin Streets,  
Philadelphia.

Development: On June 15, 1915, the Philadelphia Rapid Transit Company  
proposals for constructing the foundations for the  
to be built on Frankford Avenue, between Unity Street and Lyre  
Street, and on December 7, 1915, bids were received and the contract  
was awarded to John F. Rice on December 9, 1915.

On March 29, 1916, you were requested by this department to arrange  
your track and structures so as to permit this work to be done, and  
on May 24, 1916, Councils, by resolution, authorized the payment of  
your bills for the cost of this work.

Your company has been kept fully informed as to the work it was  
proposed to do in this section of Frankford Avenue, but up to  
the present time no work has been done, and whatever work is to  
be done must be done shortly, otherwise bad weather will render  
this street more or less impassable.

The delay you have occasioned in carrying out this work has been un-  
reasonable.

Will you please inform me at once what portion of this work can be  
carried out during the next thirty days, so that the contractor for the  
foundations can arrange his work accordingly?

On account of the narrow sidewalks in this section of Frankford, I am  
unwilling to have this street in bad condition during the winter months,  
and I am very anxious that when the work is started it shall be com-  
pleted as promptly as possible and the street surface restored perma-  
nently.

Yours very truly,

(signed) Wm. S. Twining,  
Director.

Philadelphia Rapid Transit Company  
820 Dauphin Street

City Department

Philadelphia, Pa.

Mr. Wm. S. Twining, Director,  
Department of City Transit,  
Bourse Building, Philadelphia, Pa.



Dear Sir: Your letter of October 13, 1915, addressed to the Philadelphia Rapid Transit Company, with reference to Frankford Avenue, between Union Street and Locust Street, was duly received and is hereby signed.

I regret, exceedingly, the delay in the completion of the work, due to the failure to relocate our tracks and structures on this street, and I assure you that all such delays have been entirely due to the unusual labor conditions to which we and others have been subjected during the ensuing season.

We recall that early in the season certain verbal statements were made to your department as to the probable length of time required to shift our track. These promises were made in absolute good faith, but were made at a time, early in the season, when the full extent of the labor situation was not fully appreciated. Since that time, as you know, by considerable effort and at the expense of considerable money, we have succeeded in having our tracks relocated between Church and Unity Streets, in order to allow the completion of contract ending at Unity Street, but we have been forced to suspend operations, solely on account of the conditions above noted.

For the same reason, we are unable to give any definite statement as to just how much can be accomplished during the winter season, but assure you that the matter is constantly before us, and we will use every effort to continue the work, and continuing it whenever possible through the winter months when weather conditions will permit.

As to the condition of the street, at the present time, I do not understand that the condition of our track or work is in any wise interfering with the proper use of the street, and in continuing our work every effort will be made to cause as little inconvenience as the nature of the work will permit.

Yours very truly,

(signed) Geo. B. Baker,

Work will not be commenced until spring, but as the time specified in the contract for this section of work is to be completed two and a half years, this delay will not prevent the final completion of the entire elevated structure.

Frankford Elevated Transportation

Contract No. 516--steel superstructure and masonry work in Frankford Avenue, from south side of Union Street to south side of Locust Street

A certificate of public convenience for this section of the Frankford Elevated Railway was issued by the Public Service Commission of the Commonwealth of Pennsylvania on May 20, 1915.

The contract for this section of the elevated railway is





structure as awarded to the Philadelphia and Reading Railway Company in Philadelphia, 1720 Widener Building, Philadelphia--on February 5, 1916. of bid, \$257,475.

The mill work of 1915, including the fabrication, has been completed, and the steel superstructure is being erected in the yards of the Philadelphia and Reading Railway Company in Philadelphia, Philadelphia. As soon as the column foundations to be constructed under Contract No. 502 are completed, the erection of the structure will be erected in second time, without any delay, the final completion of the superstructure, as specified in the contract for this section of the steel superstructure to be erected was only five weeks.

#### Broad Street Subway--City Hall Station-- north portion

##### Contract No. 102

Under authority of ordinances of City Councils approved June 24, 1915, and July 20, 1915, bids were received on December 7, 1916, for Contract No. 102, covering the construction of the north portion of station under City Hall and Millard Street. bidders and total amount of each bid were as follows:

Name of Bidder	Total Amount of Bid
Keystone State Construction Company.....	\$920,130.00
Smith, Hauser & MacIsaac, Inc.....	1,028,601.00
Booth & Flinn, Ltd.....	1,269,415.00

Contract for this work was awarded on December 7, 1916, to Keystone State Construction Company, 704-709 Pennsylvania Building, Philadelphia.

Work under this contract was begun on December 11, 1916, and is now in progress.

#### Sewer in Thompson Street

##### Contract No. 16

Under authority of ordinances of City Councils approved June 24, 1915, and July 20, 1915, bids were received on October 21, 1916, for Contract No. 16, covering the reconstruction of sewer in Thompson Street, from east of Seventh Street to west of Broad Street. The bidders and total amount of each bid were as follows:

Name of Bidder	Total Amount of Bid
Keystone State Construction Company.....	\$199,684.00
Lombardi & Perna.....	200,104.00
Adolph Jafolla.....	241,549.00
Ryan & Reilly Company.....	260,310.50
Emilio Pascuzzi.....	271,777.09
Whiting-Turner Construction Company.....	415,459.32

Contract for this work was awarded on October 21, 1916,



to Keystone, to the Transportation Board, 704-116  
Building, Philadelphia.

Work was begun on this contract November 20, 1910,  
now in progress.

#### PHILADELPHIA TRANSIT COMPANY

Beginning with the Transit Commissioner's report of July 24, 1913, it has been the expressed desire and plan that the Philadelphia Rapid Transit Company should assume the operation of all city-built lines, and, in combination with its own lines, provide the city with adequate transportation facilities.

The Act of General Assembly No. 336, approved July 17, 1907, empowered the city to not only construct transit facilities, sell, pledge or lease to a proper corporation, and facilities might construct or otherwise acquire.

Also, the Councils of the city were empowered to the terms and conditions upon which the lines constructed by the city should be leased or operated, and to fix the rates for transportation upon such lines, hence this Act broadly covered the construction and operation of any facilities which the city might construct or acquire, but could not give the city what was desired, viz.: a contract or agreement with the Philadelphia Rapid Transit Company that it would not only lease the city's system, but that it would extend its own system and merge it with the City's system, so that the whole should form one comprehensive transportation unit for the service of the city.

The Act of 1907 authorized the execution of contracts between cities of the first class and street railways, and under this Act the contract of 1907 was entered into with the company. That contract contemplated an extensive participation by the city in the development of transit facilities, although that contract could not be canceled before 1927, it was realized that a new contract must be drawn to meet the conditions and the contract of 1907 extensively modified.

#### Resumé of Negotiations under Previous Contract

Immediately after the publication of the Transit Commissioner's report and the organization of the Department of City Transit, in July of 1913, negotiations with the Philadelphia Rapid Transit Company were begun by the former director in order to reach a basis for a contract and lease acceptable to both the city and the company.

On March 25, 1914, the company published a statement outlining the terms of a contract which it was willing to enter into. This statement reveals the attitude of the company toward the city's plan of transit development as set forth in the 1913 report of the department, and in order to complete the record it is set forth in this report as the first concrete proposal acceptable to the company. It forms Appendix C of this report.)





The terms outlined by the company, however, resulted in a tentative agreement, some essential features being reached on May 27, 1914.

The tentative agreement were extended and formulated into a draft of a contract by the former Director and published September 4, 1914. (This draft, which is referred to as the "City's First Draft," appears as Appendix 2-1 of the report of the Committee for the year 1915.) Its publication, however, broke off all negotiations.

In July, 1915, the negotiations were renewed negotiations upon the basis of a modification of the former draft, but this draft was not acceptable to the company. This draft, which will be referred to as the "City's Second Draft," appears as Appendix 2-2 of the report of the Committee for the year 1915.)

#### Negotiations During 1916

When the present director assumed office on February 1, 1916, he had already formed definite ideas, based on his previous study of the problem, as to the reason why two and one-half years of intermittent negotiations, between the then Director and Committee of Council, with the Chicago Transit Company had failed to consummate a basis for a contract acceptable to both the city and the company. The trouble lay chiefly in two fundamentals of the contract:

- (a) The fare, which was too small for the service rendered;
- (b) The City's proposed limitations, which were too restrictive;

and to some extent in the limitations of the City's program for 1907.

The city, as represented by its former director, had insisted that the fare should be fixed and inflexible, but that the city's construction program should be free from any limitations as to the ultimate size or the cost of the City's system--a position not based on sound business or economic principles; a position involving great risk to the company's financial stability, unless protection were assured it to at least a reasonable degree.

The line of reasoning which was advanced in the public arguments made by the former Director in support of that position, may be set forth as follows:

- (a) The city should not be allowed to limit the size of the transit facilities in accordance with modern standards.



- (b) The construction of modern rapid transit lines was a necessity in order to reduce congestion of population and provide for the expansion of the city. The city should construct and own these lines and the Philadelphia Rapid Transit Company should equip and operate them.
- (c) The expansion of the city, due to rapid transit lines, will develop suburban real estate more rapidly than the normal rate, and thereby increase abnormally the total assessed value of the city's real estate.
- (d) Resulting from this abnormal increase in assessed value the city's tax revenues will be abnormally increased.
- (e) This abnormal increase of tax revenue, having been created by the city's system of rapid transit lines, should be available for meeting any city deficits created by the building and operation of those lines.
- (f) The fare between any two points within the City's limits should be uniform and not exceed 5 cents, and any city deficit resulting from such fare should be borne by the general tax revenues of the city.

While much weight was laid upon the vast excess tax revenue which the city would receive, yet the meeting of city deficits was not to be limited to the use of this excess revenue. The proposal to pay such deficits out of the general tax revenues was considered fundamentally unjust by the present director.

The position of the former director, that the contract should not limit the city's right to build lines and extensions, if, as, when and where the city saw fit, appears to have been based on a desire to leave the city free under the contract to expand its system as the necessities of traffic or the development of the city might require, its financial resources permit, or the pressure of political expediency dictate. No company could safely accept such conditions in a contract unless its solvency and profits were to be guaranteed by the city.

Premises (a) and (b) are not open to dispute, but the new director felt that premises (c), (d), (e) and (f) rested on an unproved theory as to the relation which exists between rapid transit development and city development.

That rapid transit lines are an indispensable factor in developing suburban real estate is a fact not open to question, but that such development produces an abnormal increase in the total assessed valuation of the city has never been proved.

It undoubtedly produces a large increase in the district





immediately served by the rapid transit lines, but the shifting of population and values in other parts of the city which results from the building of these lines largely neutralizes this increase, and no abnormal increase can be detected in the assessed valuation of the city as a whole.

As tending to confirm this statement the assessed valuation of Philadelphia over a period of years has been plotted and is shown herewith as Diagram 42. It will be noted that there is no abnormal increase to be detected due to the building and opening of the Market Street Subway and Elevated, which occurred in 1907. The assessed valuation of the city's real estate shows a fairly uniform increase year by year; some sections of the city show large increases, and some are stationary or show a decrease. (See Map No. 4207.)

That a large increase in assessed value of real estate in West Philadelphia took place following the building of the Market Street Line is not disputed, but in considering the tax revenues of the city they must be considered as a whole, and, as a whole, no abnormal increase attributable to rapid transit can be detected.

The remaining premises, (d), (e) and (f), rest upon the same false assumption underlying (c), namely: that an abnormal increase in the tax revenue of the city will be created and exist as the result of building and operating rapid transit lines; that there will be a surplus of tax revenue derived without increase of tax rate which will be available for meeting such deficits. This assumes that there is a profit to the city resulting from its current taxes, whereas the city is usually described as operating at cost - hence without profit.

Believing, therefore, that his predecessor had proceeded upon unproven theories and principles which were unbusiness-like and unsound, and that the form of lease which rested on these principles was impracticable as a working instrument, and did not properly protect the city, he therefore, in the report on the transit problem submitted March 29, 1916 (see Appendix A), called attention to the following facts:

- (a) That the fare is the result of the service rendered;
- (b) That this full fare must be paid by the public either in car fares or taxes; and
- (c) That the city's program, contemplating a large expansion of facilities and service, thereby automatically must increase fares if undertaken in advance or excess of economic warrant.

In accordance with these economic principles the director recommended in that report that the city adopt a construction schedule having a rational basis, unify the company's and city's systems so as to use each for the purpose for which it was most



efficient, and allow the fare to be flexible and vary to meet the cost of the service rendered.

The recommendations made in that report were vigorously opposed by the ex-director, and the ensuing controversy, together with the excitement and discussion which took place during the months of May and June in connection with the authorization by the people of loans aggregating \$114,000,000, prevented any attempt on the part of the city to resume negotiations with the Philadelphia Rapid Transit Company during the first half of the year, and Councils adjourned for the summer recess without taking any action in regard to the operation of the lines which had been authorized.

Although the Rapid Transit Company had failed to ratify either of the two drafts submitted to them by the former director, the officials of that company appeared unwilling to state the extent to which they were willing to co-operate with the city in the plan of transit development upon which the city had embarked.

After several conferences between the Mayor and the director it was decided that the city should initiate steps leading to the revival of negotiations with the company by introducing an ordinance providing for the operation of the city's system by the Philadelphia Rapid Transit Company.

The previous negotiations were reviewed and the defects in the former drafts were discussed in order to decide upon the terms upon which the city should offer its system to the company for operation.

Prompted by a desire to aid in the preparation of a proper and satisfactory operating agreement, the Chamber of Commerce, on September 22, 1916, in a letter to the Mayor, expressed a willingness to assist the city in its endeavor to reach an agreement as to the operation of the city's system.

On September 25th the Mayor announced his intention to effect an early agreement with the Rapid Transit Company, and to that end would seek the advice of an outside expert as to just and proper terms to be offered the company. Three days later he stated his intention to select William Barclay Parsons, a noted consulting engineer of New York, as the expert to represent the city's interest, and on October 3d a conference with Mr. Parsons was held by the Mayor and director.

This decision of the Mayor was endorsed by the city's representatives on the Board of the Rapid Transit Company, Colonel Sheldon Potter and Mr. William Hancock, but was strenuously opposed by the former director, who, on October 5th, issued a public statement in part as follows:

"The city should take a firm position and make clear the fact that the 1914 tentative agreement must either be rati-





fied or the city will proceed to establish an independent system in competition with and without protection to the existing system \*\*\*. The appointment of a commission or of new experts, who are either unfamiliar with or opposed to the city's program of transit development, should be avoided."

In order to avoid any controversy in regard to procedure which might result in a delay in securing an agreement, the Mayor decided that it would be wise to revert, as far as possible, to the conditions existing when negotiations were broken off in 1914. He felt that, although the first draft of 1914 might have been tentatively accepted by some of the officials of the company, its final status was obscured by the attitude of the subsidiary companies which were to have been parties to the agreement, and that all the reasons for its not being ratified had never been made public. As the fundamentals of that draft had served as the basis of negotiations in 1914, he deemed them to be equally serviceable in 1916 as a starting point. Hence, the draft of September, 1914, was hastily revised by the department to conform to the city's program of construction as had been authorized. This draft, which appears as Appendix B of this report, was presented to Councils October 10, 1916, in the form of an ordinance, and was referred to the Joint Committees of Finance and Street Railways.

At the first public hearing held by the committee on November 10, 1916, the director submitted a brief outline of the draft under consideration by the committee:

STATEMENT GIVING A BRIEF OUTLINE OF THE PROVISIONS  
OF THE LEASE AND ITS SALIENT POINTS AS INCOR-  
PORATED IN THE "FIRST DRAFT OF AN ORDINANCE  
SUBMITTED TO SELECT AND COMMON COUNCILS, OCTO-  
BER 10, 1916."

(Submitted by William S. Twining, Director, at First Public Hearing before the Joint Councilmanic Committees on Finance and Street Railways, November 10, 1916.)

In all reports of the Department of City Transit, beginning with the first report in 1913, it is assumed that the most desirable method of operating these lines will be:

1. In connection with the existing systems of the Philadelphia Rapid Transit Company, using the present system as a feeder of the city's highspeed lines.
2. As an independent system operated as a competitor of the existing system and managed either by an independent corporation, or as a municipal project.

Under the instructions of his Honor the Mayor, the draft of the lease as compiled in 1914 has been brought down to date, so as to provide for the construction and operation of the new lines authorized by the ordinance of July 20, 1916. In other respects it follows



word for word the original draft wherever possible.

A brief outline of the provisions of the lease and its salient points may be given as follows:

1. The city is to provide all money necessary for the construction of the permanent structures, either tunnel or elevated.

2. The lessee is to provide all funds necessary to supply equipment of the lines when and as needed for operation; equipment including the supply of rolling stock, power and sub-stations, cables, tracks, signals and all station decoration and fittings, electrical fittings, etc., necessarily a part of the operating equipment of the line, as well as shops and yards, with the necessary real estate.

3. The term of the lease is to be fifty years.

4. The rental to be paid the city for the use of the line is to be determined as follows:

The lessee shall keep a separate set of accounts, showing the gross revenue which is derived from the operation of these high-speed lines. From this gross revenue the following deductions are cumulative and shall be made in the order named:

(a) All expenses exclusive of maintenance and damages actually and necessarily incurred by the lessee in the operation of the city's system.

(b) Such taxes as may be assessed against the lessee or against the city in connection with the maintenance, equipment or operation of the city's system.

(c) The maintenance reserve.

(d) The depreciation reserve.

(e) The damage reserve.

(f) The contingency reserve.

(g) Interest on the lessee's investment in equipment.

(h) Equipment amortization fund.

(i) The rental of the Market Street Subway.

(j) The net preferential payment to the lessee (this payment to be made in amount paid to the lessee during the early years of operation of the city's system for the purpose of protecting the lessee to a reasonable extent from the loss of net income resulting from the operation of the city's system).

(k) Interest and sinking fund charges on the city's investment.





Such amount as may be remaining after making all these deductions, and after all previous deficits have been paid, shall be deemed to be surplus earnings of the city's system, this surplus to be divided between the city and the lessee in proportion to their respective investments at that time.

The rate of fare for a single journey over each or any of the lines constituting the city's system shall be five cents, with provision for universal free transfers.

In Section E of the lease is a program for the abolition of exchange tickets, and under Section F is a provision for the amendment of the contract of 1907 between the city of Philadelphia Rapid Transit Company.

The lease, as originally drawn, and as herewith presented, assumes that the contract will be entered into jointly by the Philadelphia Rapid Transit Company, the Union Traction Company, and the Market Street Elevated Passenger Railway Company, as joint lessee of these new lines. The legal and financial relationship existing between these companies is such that the city's interest requires that they should be jointly represented in the execution of this lease.

#### Objections of the P.R.T. Co. to the Proposed Contract

The Philadelphia Rapid Transit Company was invited to present its objections to the proposed contract, and at the following meeting, held November 17th, Mr. Ellis Ames Ballard, the company's attorney, presented the following communication:

STATEMENT OF ELLIS AMES BALLARD, REPRESENTING THE  
PHILADELPHIA RAPID TRANSIT COMPANY, AT A MEETING  
OF THE JOINT COMMITTEE ON FINANCE AND STREET  
RAILWAYS, HELD FRIDAY, NOVEMBER 17, 1916, IN ROOM 496,  
CITY HALL, FOR THE PURPOSE OF PUBLIC DISCUSSION OF  
THE PROPOSED CONTRACT AND LEASE BETWEEN THE  
CITY AND THE PHILADELPHIA RAPID TRANSIT COMPANY  
FOR CITY-BUILT LINES

PHILADELPHIA RAPID TRANSIT COMPANY

Philadelphia, Friday, Nov. 17, 1916.

Mr. Chairman and Members of  
Joint Committee of Councils.

The company appreciates the opportunity of stating to you, and through you to the public, its attitude in respect to the equipment and operation of the city high-speed lines.

In May, 1914, as a result of conferences held between representatives of the Transit Company and Mr. Taylor, who was then Director of City Transit, a basis for a suggested agreement was prepared, which was dependent, however, upon the Rapid Transit Company securing financial aid from the Union Traction Company.



The essential features of this tentative agreement were:

1. The program at that time was limited to Frankford, stopping at Bridge Street; Broad Street subway, stopping at Pike Street, with branches and a delivery loop and Darby. It was estimated by the Director of City Transit that the contribution of the Rapid Transit Company for equipment of these lines would be slightly less than \$12,000,000.

2. Exchange tickets were to be abolished in order that the two systems could be operated as one. The company was to receive a partial consideration for this concession. A year later Director Taylor suggested some changes in this consideration, which you will find in his official report for the year 1915.

3. Insofar as the competition of city-built lines depleted the current net earnings of the Transit Company's own system (except net earnings from exchange tickets) that loss was to be made up to it by a preferential payment out of the earnings of the city's lines. That is to say, those earnings were to be applied (1) toward paying 6 per cent. upon the cost of equipment furnished by the Transit Company; (2) toward making up any loss in its said current net earnings which the company had experienced from this competition; (3) toward meeting the interest and sinking fund charges on city bonds; and (4) the balance of earnings to be divided between the parties in proportion to their contribution to the city lines.

Two and a half years have elapsed since these conferences, and the situation has changed materially in many respects. First, the Union Traction Company has not up to the present time agreed to furnish the necessary financial assistance. Secondly, since the suggested agreement the city has provided for extensions and additions to the original Taylor plans which materially increase the commitment of the operator and alter the financial results to be fairly expected. Thirdly, the cost of all items of construction and equipment are much greater than the original estimates, so that the company now estimates that to equip even the lines originally included in the 1914 plan will take from seventeen to eighteen million dollars, as against twelve million then estimated.

However, I wish to say, on behalf of the company, that it stands ready to enter into a contract with the city of Philadelphia incorporating the spirit of the 1914 plan with the 1915 amendment as to exchange tickets, and that it will go just as far in this matter as its credit will permit. It will be necessary, however, to make such financial arrangements as may be required to enable the company to secure the money not only for the equipment of city-built lines, but for its own current needs for refunding and extensions. The problem does not seem to us to be insurmountable, but is one which will require careful thought and concessions on both sides. The understandings which have been reached between the company and the city's representatives are not to be confounded with the form of contract which has been submitted to you by his Honor, the Mayor. That is a draft in the preparation of which the Rapid Transit Company representatives have had no voice. As already stated, however, we stand ready to carry out the understandings of 1914 and 1915 to the extent of our ability, and for that purpose will be glad to join





with the city in the preparation of a contract which shall fairly protect both parties.

This latter forms practically a rejection of the contract, and, therefore, the chairman requested Mr. Ballard to furnish the committee with a draft which the Philadelphia Rapid Transit Company would regard as acceptable and fair to the city and company.

On December 20, 1916, the company submitted to the Mayor the following outline of a draft.

REPORT OF THE SPECIAL COMMITTEE ON RAPID  
TRANSIT NEGOTIATIONS MADE TO THE BOARD OF  
DIRECTORS OF THE PHILADELPHIA RAPID TRAN-  
SIT COMPANY AT IT ADJOURNED MEETING THIS  
DAY, WEDNESDAY, DECEMBER 20, 1916

The Special Committee on Rapid Transit Negotiations desires to report the result of its conferences and the formal recommendation that the following letter be to-day submitted to the Mayor and the Joint Committee of Select and Common Councils of the city of Philadelphia:

To the Mayor and Joint Committee of Select and  
Common Councils of the City of Philadelphia.

Gentlemen: The Philadelphia Rapid Transit Company proposes that a contract for the operation of the city's high-speed lines shall be undertaken by it under the following general terms, which, if acceptable to the city, can be incorporated in a contract drawn in definite terms so as to adequately protect the interests of both parties thereto in every respect.

The Taylor plan covers an elevated from Front and Arch Streets to Bridge Street, Frankford; an elevated from Thirtieth and Market Streets to Darby; a subway-elevated line from City Hall to Roxborough, via the Parkway, twenty-ninth Street and Henry Street. It provides that the Rapid Transit Company shall equip these lines, extensions thereof and other lines built by the city and operate them in conjunction with its own lines as one system, granting free transfers at intersecting points, so that the citizens would get the fullest possible benefit from this great expenditure by the city.

Hertofore the condition of the Rapid Transit Company was such that it was proposed that the receipts of the two lines should be kept separate, and the Rapid Transit Company protected by a so-called preferential payment to the extent that its earnings were diverted to city lines. The great improvement that has taken place in the financial condition of the Rapid Transit Company makes this plan no longer necessary, as the company is to-day making on its own system a greater amount than it is willing to accept as an assured fixed share of the profit from the joint operation of the two systems. Its surplus applicable to dividends for the current calendar year with the month of December estimated will be very close to \$2,400,000, or 8 per cent. upon the full-paid capital of the company.



### Terms of Operation and Distribution of Earnings

The company, therefore, proposes that the two systems should be operated as one--financially as well as physically--all payments, charges and credits between the city and company to be eliminated, and the gross receipts from such operation to be applied to the payment of:

1. The actual cost of operation of the combined system.
2. The fixed charges of the company.
3. A cumulative dividend of 5 per cent. upon the actually paid in capital stock of the company.
4. Ten per cent. of the remaining net surplus from operation to be paid to the company and the remaining 90 per cent. to be the annual current net revenue to the city from the operation of the city-built lines and paid into the city treasury as such, within the meaning of the recent amendment to the constitution.

Insofar as may be necessary, the 1907 contract to be amended so as to cover this distribution of net surplus earnings and the company to waive all claim for back dividends due to it thereunder.

The company has earned a substantial surplus, which, at the close of its last fiscal year, was in excess of \$2,700,000, the cash balance at the same date being approximately \$3,000,000, out of which it has since distributed a dividend of 2 per cent., or \$600,000.

It has added substantially to that surplus during the last five months of operation. Until it assumes actual operation of the city's lines under the proposed contract it will limit its dividend distributions to 5 per cent. per annum from July 1, 1916, and will carry over into the new arrangement as working capital all surplus which it may have acquired at that time.

The contract shall reserve to the city the right at any time to purchase the company's property or outstanding capital at a price equal to the par of such stock with dividends accumulated and unpaid during the term of this contract, and may use the sinking fund accumulations for that purpose. The city may also at any time during the term of the contract take back the municipal properties under a fair recapture clause.

Exchange tickets shall be abolished at the earliest practicable moment, and free transfers given on surface and high-speed lines outside the delivery district as recommended in the report of the Director of City Transit for 1915. The company will forthwith remodel its Nineteenth Street station on the Market Street Elevated and will make it a stop for high-speed trains and establish a transfer at that point with the Nineteenth and Twentieth Streets lines, with a further transfer thereon in order to give to passengers between West Philadelphia, and either North Philadelphia or South Philadelphia, an opportunity to make the journey on the high-speed





lines and for a single fare, thus relieving a discrimination that would otherwise exist in favor of Frankford, and giving adequate high-speed service to the district tributary to the Nineteenth Street station.

All payments into the city treasury under the 1907 contract and for tax on dividends of subsidiary companies to stop at the time exchange tickets are abolished. The present sinking fund under the 1907 contract to remain in the hands of the commissioners and payments into the same to be resumed five years after the date of the extension of said contract as provided therein.

The system shall be operated with a 5-cent fare, but provision shall be made for such readjustments of fare at any time, during the term of the contract, as may be necessary to protect and secure the return to the company as specified herein and necessary and advisable in the interest of the city for any unforeseen reason or contingency.

#### Equipment of City Lines

The company will undertake to equip and operate the city lines when and as built after the city has obtained a certificate of public convenience. The form of security to be issued by the company to cover the company's contribution for construction and equipment of city's lines to be the best compatible with the interests of both parties.

#### Capital Requirements for Company's System

The company will undertake to obtain \$19,500,000 of new capital as and when required for the future requirements of its own system. If obtained by the payment of the unpaid portion of Union Traction stock, the company will be permitted to amend its lease with that company so as to pay a rental equivalent to five dollars a share upon its full-paid capital. If obtained by an issue of Union Traction preferred stock or Philadelphia Rapid Transit preferred stock, or on any other form of security, there shall be allowed a return of 6 per cent. cumulative thereon as one of the fixed charges of the company.

It has been suggested that the city might from time to time offer to build feeder or surface lines which would be reasonably remunerative and rent them to the company on a 5 per cent. basis. If this were done, fifty-year bonds issued by the city to cover the cost would not count against the city's borrowing capacity, and the rental paid the city would meet the interest and sinking fund requirements of such bonds. Thus the city would ultimately become the owner of such lines free of debt.

This suggestion, which meets with our approval, should, we believe, receive your consideration.

#### Time of Taking Effect

The contract shall be executed and take effect as soon as it



secures the approval of City Councils, the Public Service Commission and the stockholders of the Philadelphia Rapid Transit Company. The fifty-year period of operation and the fifty-year extension of the 1907 contract shall run from the beginning of operation of the first of the city-built lines.

The 1907 contract shall be so amended as to conform with the terms of the new contract.

The plan as proposed has to recommend it definiteness, fairness and a promise of immediate advantages to the citizens in the elimination of exchange tickets. The city secures the best possible operator for its system, with a free interchange of passengers between privately owned lines and municipal high-speed lines-- a result never before attained in any city. All complicated accounting is avoided, and while the stockholders of the company take a 5 per cent. fixed return upon their actual cash capital, in addition thereto they retain a sufficient contingent interest in the success of the joint enterprise to insure a careful and competent management on their part.

We bespeak on your behalf, and by the public generally, a careful consideration of this offer.

Respectfully submitted,

PHILADELPHIA RAPID TRANSIT COMPANY,  
(Signed) T. E. Mitten, President.

Approved:

(Signed) E. T. Stotesbury,  
Chairman, Board of Directors.

This draft, the company stated, had been prepared in conference with the ex-director of the Department of City Transit, and had his full approval. The Mayor requested that the company put the contract in the form of a draft, and directed that the department analyze it and make a report as to its merits before transmitting it to Councils.

The director felt that the city was not properly protected in the form of contract which the company proposed, and that the form of contract which the city had offered under date of October 10th, like those which had preceded it, was impracticable in its plan and contained many defects and weaknesses.

As was stated in the Mayor's letter, which accompanied that draft, it was submitted in order to express simply the desire of the city authorities as then constituted for a resumption of negotiations looking forward toward the operating by the existing company of the high-speed system which the people had authorized.

This draft, as was the earlier one of 1914, of which this latter was a revision, was modeled in general upon the contracts ex-





executed in New York City between that city and the companies operating the city's "dual system." The New York lease was executed in 1913, but there was no similarity in the transportation conditions which existed in New York and the contemplated and desired conditions in Philadelphia. The attempt to build an agreement to fit Philadelphia conditions on the plan of the New York contracts had produced an impracticable instrument.

The director recognized the importance of a practicable contract and its effect on the undertaking upon which the city had embarked, and in his report submitted to Councils March 29, 1916 (see page 40), had stated as follows:

"The preparation and negotiation of a lease of this character for a long period, involving not only the liability for large sums upon the city's side, but the welfare of a large transportation company as well, involves a serious responsibility, and will require the best legal and technical talent available, as will appear from a study of what possibilities are involved in this, the most vital feature of the entire undertaking."

The director accordingly submitted to the Mayor, on December 27th, the following preliminary report:

LETTER WITH RECOMMENDATIONS BY WM. S. TWINING,  
DIRECTOR, RELATING TO THE TERMS, CONDITIONS AND  
METHODS OF FINANCING AS OUTLINED IN THE "REPORT  
OF THE SPECIAL COMMITTEE ON RAPID TRANSIT NEGOTIATIONS MADE TO THE BOARD OF DIRECTORS OF THE  
PHILADELPHIA RAPID TRANSIT COMPANY AT ITS AD-  
JOURNED MEETING, DECEMBER 20, 1916."

Philadelphia, December 27, 1916.

Hon. Thomas B. Smith,  
Mayor of Philadelphia,  
City Hall, Philadelphia.

Dear Sir:

On October 10, 1916, your Honor submitted to Councils an ordinance authorizing and providing for the execution of a contract and lease between the city of Philadelphia and the Philadelphia Rapid Transit Company, the Union Traction Company and the Market Street Elevated Passenger Railway Company, and fixing all the relations, duties, rights, powers and liabilities between the contracting parties/

The joint committee of Councils, to which this ordinance was referred, held public meetings thereon. At the meeting on Friday, November 17, 1916, the Philadelphia Rapid Transit Company, through its attorney, Mr. Ellis Ames Ballard, presented a letter which closed with the following words: "We stand ready to carry out the understandings of 1914 and 1915 to the extent of our ability, and for that purpose will be glad to join with the city in the preparation of a contract which shall fairly protect both parties."



A preliminary study of the plan reveals that it is not all definite, and a copy of a letter to Mr. T. E. Mitten, president of the Philadelphia Rapid Transit Company, asking for information on certain points which are not clear, is enclosed herewith to be sent with your approval.

The preliminary study which has been made indicates that it should be examined from at least four standpoints:

1. The legal.
2. The financial.
3. The engineering.
4. The sociological, or standpoint of public policy.

From the legal standpoint the proposition involves problems of control which the former director has heretofore held to be outside the jurisdiction of this department. I concur in that opinion, as I understand the Public Service Company law, but in order to remove any doubt pertaining to this feature of the plan an opinion should be obtained from the City Solicitor upon the legal points involved. Some of these points will be presently outlined in a letter to the City Solicitor. Further study may uncover other points.

The financial results to the city and to the company, together with the engineering features of the plan, should be examined and compared with the city's original plan so that the public may know wherein they differ, and form their own judgment as to the relative merits of the two plans. For this work, I advise that Messrs. Ford, Bacon & Davis, who have been in the employ of this department under the former director for several years on this character of work, be retained as their familiarity with the local conditions and with the terms of the city's former propositions will enable them to be of more assistance to this department than any other firm I know of. Their ability and integrity in this line of work is unquestioned, and as it is of great importance to have this work done quickly, I immediately took steps to secure from that firm a proposal naming the terms under which they are to act as consultants in this analysis, and have asked that a contract be drawn to secure their services. This, I trust, meets with your approval.

The contract of 1907 makes it mandatory that a full statement of the Philadelphia Rapid Transit Company's receipts and expenditures shall be annually submitted to the City Controller, who shall thereupon examine the books, verify the statement and render a report to Councils.

The cost of this examination, verification and report by the Controller has not been provided for by Councils since 1910, and no official examination of the company's accounts has been made by the city since that date. An ordinance submitted by the former director of this department, authorizing such report to be made at the expense of this department, failed of passage.





Preliminary to any serious consideration of this new proposition of the company's, the condition of the former contract should be fulfilled, as this official information as to the actual financial soundness and responsibility of the company to make such a contract should form the basis for the financial terms of the new contract.

The company's cards should be placed on the table face up along with the city's.

I respectfully request that your Honor arrange with the Controller to make such report as is contemplated by the 1907 contract for the period -- 1910 to date.

This lease is such an important matter to the city that every effort will be made by this department to examine the proposition promptly and thoroughly and to submit a full statement as to what it is estimated to mean to the company and to the city during the period of 50 years which it is contemplated it shall remain in force. When satisfactory terms are finally reached and the contract executed, it is intended that it shall not be found to contain such clauses as exist in the 1907 contract and which have been interpreted by the courts to mean something entirely different from what the public supposed at the time the contract was executed.

Yours very truly,

(Signed) Wm. S. Twining,  
Director.

Following the recommendations of above report the Mayor approved of the re-employment of Messrs. Ford, Bacon & Davis as consultants in the analysis of the company's proposal, and arranged that an ordinance providing for an audit of the company's books and accounts should be introduced at once.

Thus the year closed, as to lease negotiations, with a bona-fide proposal from the company, naming conditions which, while not acceptable to the city, were doubtless susceptible of modification. A substantial foundation was laid during the year upon which to build an acceptable contract in 1917.

The reports of the Chief Engineer and Engineer of Subway Construction follow.

Respectfully submitted,

(Signed) Wm. S. Twining,  
Director.

#### Construction Work under Contract at Beginning of Year

The construction work under contract at the beginning of the year consisted of the unfinished portions of some of the sewers



(Contracts Nos. 10, 11, 12, 13 and 15); also the City Hall Station section of the Broad Street Subway (Contract no. 101), and the foundations (Contract No. 501), and steel work (Contracts Nos. 511 and 518) of the Frankford Elevated from Callowhill Street to Unity Street. There was also a small uncompleted contract for borings placed in 1914, the work being done as and where required for investigation of sub-surface conditions along contemplated routes.

#### Construction Work Placed Under Contract During the Year

The work placed under contract during 1916 consisted of the reconstruction of the sewer (Contract No. 16) in Thompson Street, from Seventh Street to Broad Street, and the construction of foundations (Contract No. 502), and steel superstructure (Contract No. 519) for an additional section of the Frankford Elevated, extending from Unity Street to Dyre Street in Frankford.

Although bids were received December 14, 1915, for the two latter contracts -- the foundations (Contract No. 502) and superstructure (Contract 519) for the Frankford Elevated from Unity Street to Dyre Street, the work was not awarded until February 5, 1916, because of the delay in the issuance by the Pennsylvania Public Service Commission of the certificate of public convenience required by law before work could proceed. This delay by the commission was apparently due to petitions by business interests for changes in locations of stations along the line. The department's plans, however, were finally approved by the commission after several public hearings.

There was also an additional contract (No. 102) made for a portion of the City Hall Station section of the Broad Street Subway originally embraced in the contract (No. 101) let in 1915, but separated from it because of unexpected conditions encountered in the old foundation walls of City Hall. The original length of the section covered by the first contract (No. 101) was 700 feet, and it was reduced to 406 feet because of the limitations of contract payment for extra work. The remainder--294 feet--was readvertised and let as Contract No. 102, and the same contractor, the Keystone State Construction Company, being the lowest bidder therefor, was awarded the contract.

#### Construction Work Completed During the Year.

The contracts completed during the year were those for the sewers in Walnut Street (Contract No. 10), in Washington Square and Locust Street (Contract No. 11), in Sixth, Race and Eighth Streets (Contract No. 12), and in Buttonwood Street (Contract No. 15), the foundations for the Frankford Elevated as far as Unity Street (Contract No. 501), and the first contract section of steel superstructure from Callowhill Street to Girard Avenue (Contract No. 511). Also the borings contract was completed.

#### Suspension of Elevated Construction During Inclement Winter Weather.

Erection work on the Frankford Elevated was temporarily sus-





pended December 13, 1916, because of the difficulty of securing satisfactory work during the winter, and the impossibility of prosecuting it at all during inclement weather, and it will be resumed when the season opens in the spring. The daily time charge against the contractor is suspended during the interval. The specifications and the contract contemplated entire completion of the steel work and the restoration of the paving around the columns before the winter set in, but through a combination of circumstances, over which the contractor had no control, this could not be accomplished. The delay in completion of the superstructure work now under contract will not be likely to cause delay in the ultimate completion and operation of the road because of the time that will be required for the construction of stations, and for the construction of the portions of the line south of Callowhill Street and north of Dyre Street, which are necessary for proper terminal facilities, and which have not yet been placed under contract, and cannot be until the southern terminal of the line is definitely determined, which determination is contingent on the still unsettled elements of the problem; the leasing and operation of the line and the routeing of the trains.

#### Elevated Construction Work Delayed in Frankford.

No work at all was done on Contract 502--column foundations in Frankford Avenue from Unity Street to Dyre Street--because nearly all the the piers are to be in the middle of the cartway and require the preliminary spreading of the existing street-car tracks. The contractor has been ready to proceed with his work, but the Philadelphia Rapid Transit Company has thus far failed to do the necessary work on its tracks, although the department requested it nearly a year ago and Councils made provisions to reimburse the company for its work. Because the piers were not built the steel work of Contract 519 could not be erected, although it has all been fabricated at the shops.

Details of all the contracts are given on Pages 132 and 133.

#### Numbering of Contracts Under a Classifying System.

The numbering of the contracts is done under a classifying system whereby the number of a contract always designates its location. Thus numbers 1 to 9 are used or reserved for contracts for borings; numbers 10 to 100 are used or reserved for contracts for sewers, numbers 101 to 200 for Broad Street Subway north of Market Street, numbers 201 to 300 for Delivery Loop and Broad Street Subway south of Market Street, numbers 301 to 400 Parkway-Roxborough Line, numbers 401 to 500 Darby Elevated Railway, numbers 501 to 600 Frankford Elevated Railway, 601 to 700 Chestnut Street Subway, and 701 to 800 Frankford, Bustleton and Byberry (Thirty-fifth Ward) Surface Railway.

#### Plans.

Plans were well advanced for inviting proposals early in 1917 of the whole of the Delivery Loop Subway, and stretches of the Broad Street Subway from South Penn Square to Pine Street and



Filbert Street to Stiles Street. Also plans for an additional station on the Frankford Elevated to be established at Huntingdon Street (certificate of public convenience for which was granted by the Public Service Commission December 11, 1916), and for the buildings and canopies of all the stations, and for the finished concrete work of all the structure already placed under contract.

Also complete detailed plans were made for the necessary foundation and steel work for the southern end of the Frankford Elevated from Callowhill Street to Arch Street as designed for connection at Arch Street with the Market Street Subway, in anticipation of an operating agreement that will include the use of the Market Street Line for the Frankford trains, these plans being ready to invite bids for contracts for the foundations and steel work at one if an agreement for such operation shall be made with the Rapid Transit Company, and the necessary certificate of public convenience be granted by the Public Service Commission of the State of Pennsylvania.

#### Modification of Contract No. 101

##### The Subway Beneath the City Hall

The circumstances attending the modification of the original contract for the City Hall Station section of the Broad Street Subway, by which the length of the section to be built was reduced from 700 feet to 406 feet and a separate contract made for the 294-feet portion, were as follows:

After the commencement of work on Contract No. 101 in September, 1915, and upon exposure of the existing foundation walls of City Hall by the excavation, it was found that those walls, were in general, so defective in character that the contemplated methods of underpinning and of transferring the bearing of the building walls from the soil to the new subway roof required the rebuilding of the foundation walls before the construction of the subway beneath them could be commenced.

In the original contract the lump sum price for the whole work as shown on the plans was \$1,700,000, but because of the uncertainties attending deep foundation work, and in anticipation of the possibility of necessity for deeper construction to obtain rock bottom under City Hall, and also to provide for possible modification of details of construction in the station, provision was made in the contract by means of definite unit prices for such extra work. This provision for additional expenditure was limited to \$300,000 in addition to the lump sum price for the main item, this amount being estimated to be ample to cover any possible contingencies, wherefore the limit of expenditure under the contract was fixed at \$2,000,000.

As the preliminary excavation under Contract No. 101 proceeded and the foundation walls of City Hall were successively exposed and the need of rebuilding the defective portions of them involved large added expense, it became apparent that even with-





out the possibility of extra expenditure for deeper foundations to obtain rock bearing under City Hall, the allowance of \$300,000 would not be sufficient to provide new and adequate foundation walls under the building. In the uncertainty as to the solution of the problems thus created the contractor's operations were materially restricted. In view of the evidently great prospective increase in the cost of the construction of the subway station as planned beneath City Hall, and to give opportunity for consideration of what seemed to be an advantageous change in the alignment of the subway, and therefore possibly in the location of the City Hall Station, the contractor was directed on February 24, 1916, to suspend work on the contract. At this time the preliminary excavation had been made to as great a depth as the condition of the foundations of City Hall warranted over a considerable portion of the area of the work under the building. When it was decided to adhere to the original plans of alignment and location of station, and the order was given to the contractor to resume work on April 6, 1916, the contractor declined to proceed again with the work unless provision was made for the replacement of the defective foundation walls in advance of his being required to construct the new subway beneath them. (See Drawings Nos. 1229 and 2794, also Appendix D).

After long consideration of the problem it appeared that the only practicable solution of it was to proceed under the existing contract with such reconstruction of the foundation walls of the building as was necessary for safety, making payment for that work under the Force Account Item of the contract, and in order to secure sufficient funds within the contract to ensure completion of a section of definite length, it was decided, after advice by the City Solicitor as to its legality, to shorten the length of the structure to be built under Contract No. 101 by the amount estimated as necessary to reduce the lump sum work sufficiently to release funds enough to cover the cost of the reconstruction of the foundation walls.

#### SUBWAY CONSTRUCTION

##### City Hall Station - Broad Street Subway

##### Contracts Nos. 101 and 102

Work on the construction of the City Hall Station, begun on September 13, 1915, progressed during the current year, and was confined principally to the items of excavation and the replacement of the defective foundations of the City Hall.

North and south of the building the excavation has been made within the prescribed lines to a depth of 20 feet below the surface of the street, approximating the subgrade of the existing P. R. T. Subways, and within the limits of the building its general level is a few feet below the basement floor.

The defective condition of the foundations of City Hall, as disclosed during the early stages of the work, has been an important



factor in retarding the rate of progress and in influencing the construction program on the actual subway structure. These walls were found to consist of a very inferior grade of rubble masonry, the stones comprised therein showing imperfect embedment in a weak lime mortar. Many sections were observed where the lime had been entirely omitted, with plain gravel and loam, possessing no cementing properties whatever, acting as a substitute for mortar, resulting in a mass of loose stonework that could not be maintained nor safely supported during the underpinning stages of the construction.

Under these conditions it was deemed advisable to replace the defective foundations with brick and concrete masonry before proceeding further with the work as originally planned. Photographic plates accompanying this report show representative sections of the old foundation walls, and illustrate the methods followed in their replacement.

In replacing the walls the usual practice of temporarily needling and opening up short sections is being followed, and a spread footing of concrete, reinforced with steel I-beams, is first placed to provide a wider distribution of the transmitted loads over the bearing soil. This footing is placed immediately below the elevation of the under side of the subway roof, and is to be removed at the time of the core excavation, subsequent to the final underpinning stage comprised in the transference of the walls of the building to the subway roof system.

Work preparatory to the rebuilding of those portions of the foundations of City Hall which it will be required to underpin was commenced on May 8, 1916, in basement rooms numbered from 81 to 87 at the northwest corner of the building.

#### APPENDIX A

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An Abstract from a Report upon the Problem of Passenger  
Transportation in Philadelphia by a Unified System  
of Lines--by William S. Twining, Director,  
Submitted to the Select and Com-  
mon Councils of Philadel-  
phia, March 29, 1916

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DEPARTMENT OF CITY TRANSIT

CITY OF PHILADELPHIA

To the Select and Common Councils of the City of  
Philadelphia:

Gentlemen:- Introductory to this, my first report on the rapid transit problem in Philadelphia, it may be well to state





that it is submitted in compliance with the act creating the department, which states:

"The director shall, from time to time, make such recommendations to the councils of said cities, as to him shall seem proper, for the improvement and development of the facilities for transportation of persons and property within said cities."

When I accepted this office under the city government I had definite ideals and convictions regarding the principal features of the transportation problem of Philadelphia, but I had no intention then of issuing a report of this character.

Further study of the situation, however, has shown me that a report is needed, primarily in order to explain my motive and purpose in suggesting some changes in the details and the financing of the plan for transit development now before the public, popularly known as the "Taylor Plan;" also to make clear some of the technical and financial features of that plan, and to advise City Councils what methods of executing it I consider are rational and business-like, and will tend toward the final attainment of the ideal which is so much desired.

The transit problem in Philadelphia is a real problem, and the solution of it is a vital issue.

The problem may be expressed as a question, "What can be consistently done, and what shall be done, to improve the transportation facilities of our city to provide for future growth, and how, when and where shall such facilities be provided?"

The original "Taylor Plan" as published in 1913 was the result of a year and a half of study and investigation of Philadelphia conditions and was supposed at that time to be a complete answer to the problem.

No competent authority will assert that any general plan of such scope and character is absolutely final and perfect; all such plans must be altered and amended to suit new ideas, new conditions and new data. As evidence that this is true as applied to the "Taylor Plan", I quote the first paragraph of the 1914 report of this department:

"In order to outline the present status of the project for which this department was established, I call to your attention the recommendations of my previous report, as partially modified and enlarged by additional recommendations which are referred to at length herein."

Two revisions of the original plan have been issued by Mr. Taylor, the former director of this department, and the main features of the final plan of 1915 are excellent in their conception. Different officials draw different conclusions and form different opinions from the same data, and in this report I sub-



mit suggestions which, in my judgment, will amend and improve the plans already published.

This report is supplemental to those that have preceded, and may be considered as a fourth edition of the "Taylor Plan," differing in no essential features--only in details and policy--from the latest plan as issued in the 1915 annual report of this department. The ideas presented herein are set forth with the sincere desire to secure to Philadelphia the best obtainable transportation service.

In view of my relation with this department for the last three and one-half years, as a member of the staff of Ford, Bacon & Davis, consulting engineers to the department, it seems unnecessary to state that I do not entertain the slightest opposition to the general plans already proposed.

The transportation problem of Philadelphia is a business and municipal one, and the solutions presented in this and former reports are the personal opinions of individuals who are honestly striving to serve the city to the best of their ability.

I wish to state clearly and emphatically that I have no desire or intention to recommend any curtailment of the comprehensive program of rapid transit development outlined in the former reports of this department. I realize fully the value and great amount of work done by Mr. Taylor, my predecessor in this office, in procuring the enabling legislation and thereby starting this important enterprise. I appreciate the great difficulties with which he was confronted, and having had a small part in planning this work, have tried in this report to so continue his plans that the ideal may be eventually realized.

I am heartily in favor of the construction of each and every one of the radial lines or routes which have been recommended, if, as, and when authorized by the citizens.

Acting as the legal consulting engineer for the City Councils in transit matters, it is my duty to assist them to obtain for the public such benefits as are practically possible--not to obstruct or delay any plan or its execution.

This department certainly will not oppose the construction of lines anywhere and everywhere so long as the citizens realize and are willing to assume the resulting burdens. They alone must determine the extent to which they wish to furnish funds for building such lines.

The director of this department cannot nullify or modify the acts of the citizens or their representatives in City Councils.

Professional ethics demand that a report of this kind shall present the truth, and the whole truth, in regard to the subjects discussed. This report aims to fulfill that demand in regard to the transportation problem of Philadelphia as the director sees it.





This report is not to be considered in any way as either a personal or political attack, or criticism of plans originated under the former administration. It is made only to serve the best interests of the city.

Although this report assumes that the present system and the new city-built lines will be operated as a unified system, it must not be overlooked in considering the problem that the city has no legal power to force a lease of its high-speed system upon the present company. The threat of a ruinous competition is the principal weapon which the city may use in order to compel the execution of a lease of the new lines by the present company/

An engineer's work is principally constructive. His aim should not be the destruction of either physical or financial property, but its conservation.

This is an engineer's report on a transportation problem, an experiment unique in many features, and is intended to give such facts, advice and technical data as the public may need in order to understand the fundamental difficulties inherent in an enterprise which even its most enthusiastic advocates admit must burden for years to come wither the taxpayer or the car rider, as may later be determined.

It aims to point out some fallacies popularly believed, to make some suggestions that should be helpful, to bring out such facts as have not heretofore been generally known--or, if known, not appreciated as to their importance--and to serve the people and the best interests of the entire City of Philadelphia/ In its preparation I have given much study as to how the burdens and benefits which the lines will produce should be distributed, and suggestions are herein presented.

While in this report a program of construction is advised which calls for the authorization at this time of only \$35,000,000, I feel that the determination of the amount that shall be authorized is a matter that rests entirely with the citizens and their representatives in City Councils.

I would suggest, however, that this item be placed in the loan bill for the purpose of rapid transit development with a broad authorization following the general wording of the act, i. e., "for the construction and improvement of subways, tunnels, railways, elevated railways and other transit facilities," or if this be considered inadvisable or inexpedient, the item may be worded as follows:

Item--Towards the construction of subways, tunnels, railways, elevated railways and other transit facilities along any or all of the following routes:

Frankford line,  
Broad street line,  
Parkway--Roxborough line,  
Darby line,



Together with any or all branches and extensions of same.

If legally possible, I advise that the lines be divided into sections, as has been done in this report, and the people permitted to vote on each section of the plans independently, the estimated cost of each section being apportioned in the loan. In this way a definite expression can be obtained from the citizens as to their attitude toward the transit problem as a whole and the extent of their interest in the individual lines.

I realize that the public in general does not possess the proper technical knowledge and training to enable it to decide intelligently as to the merits of the suggested alterations in routing, station locations, etc. Some of these changes involve problems of railroad operation as well as construction. In addition, the public is often swayed as to its judgment on such matters by sentiment.

The decision as to all such matters affecting this problem should not be influenced by personal, political or sentimental consideration, and as all plans must be law be submitted to and finally approved by the Public Service Commission of the State, I suggest that, in order to avoid delay, the commission be requested to review this situation as far as their powers permit and render a decision as to these details as soon as possible.

I take this opportunity to thank my assistants in the department for the efficient aid they have rendered in the preparation of this report and their earnest endeavors to aid in the solution of this public problem.

Respectfully submitted,

(Signed) William S. Twining,  
Director.

March 29, 1916.

#### GENERAL DISCUSSION OF THE TRANSPORTATION PROBLEM

##### Elements of the Problem

The entire transportation problem of the city contains but two fundamental elements--service and car fare-- what kind of service do the people want, and how much are they willing to pay for it?

It is a purely economic problem, the service demanded by the public constituting the cause and the car fare the effect.

If looked at from the other direction, and the car fare be fixed, the resulting service will be automatically determined.

Rapid Transit facilities are simply one element of service in the general transportation problem of the city. As the quality and amount of service rendered by a system must be a large factor in determining the car fare, it may be said that the con-





trol and solution of the entire problem centers in the fare.

### The Service Element

The prominent element of this problem as the public ordinarily regards it is the service to be rendered. They regard the fare as fixed. But that it is not fixed and that it varies with the cost of the service rendered will be shown in this report.

The term service has been defined as an agency for the accomplishment of some constantly needed work or the supply of some recurrent demand. Transportation service in the mind of the public is graded according to the degree in which it possesses each of the elements of frequency, regularity, reliability, accessibility, speed and comfort.

In considering the service requirements of a city the population must be divided, not into wards or political divisions, but into zones of density and distance from the center of the city--into economic divisions.

The term "Unified Service" as used in this report means a joint operation of surface and rapid transit lines in such a manner that each shall as nearly as possible render the service include a proper return upon the value of the plant used in the service. A discussion of the elements of transportation service is beyond the scope of this report.

### The Fare Element

The fare on any transportation system is the result of the cost of the service divided by the number of passenger journeys. The fare is thus seen to vary directly with the cost of the service and inversely with the number of passengers. Expressed in a formula, it is:

$$\frac{\text{Total cost of the service}}{\text{Number of complete journeys}} = \text{The average actual fare per journey.}$$

From this formula, with any two elements known, the third is readily found.

In this discussion the term "car fare" is as defined above, and means the average fare required to support the service. The actual fare collected on the cars may or may not be what is here called the "fare."

From this it is evident that the passenger fare required to support the service is not a fixed amount; it varies from day to day, from year to year, and is different in each section of the city. Like many other elements of this problem dealing with the city as a whole and containing so many variables, the average fare required must be used, and is so considered in this report.



If the fare collected be in excess of the fare as determined by the formula, a surplus will result, available for distribution between the city and lessee according to the provisions of the lease of the lines. If the fare collected be less than the fare as determined above, a deficit must result.

The actual fare is fixed by economic conditions--the fare paid is fixed by city ordinance or the operating company.

Statistics show that with any given system, once it be constructed, the increase in passengers is usually larger than the corresponding increase in the cost of service, and thereby a gradual reduction in the fare required becomes possible as the traffic on the system approaches the capacity for which it was designed.

The proposition to build these lines out of city funds largely arises from a vague idea in the public mind that if the city builds these lines, a 5-cent fare will render the service profitable now. This is a misconception, for the resulting rise in car fare takes place the same as though the lines had been built by the company. The fact that the rider pays only 5 cents does not prove that the fare to support the service has been only 5 cents. A deficit resulting from this car fare appears first as a deficit in the city's interest, next as a deficit in the city treasury, next as an increase in taxes on real estate, and lastly in the form of rent or increased living expenses, thus reaching the citizen by an indirect route. He has paid the increased fare (the excess of cost of service over 5 cents), but not in a direct way.

The estimates made in this department show that the ideal condition, the profitable operation of the unified system on a 5-cent fare may eventually be actually possible. It is not possible now--the actual fare on the existing system in 1915 being 5.166 cents per journey, and, with the exception of three years when strip tickets were in use, the fare per revenue journey has exceeded 5 cents since 1895.

Citizens should not delude themselves into the belief that the average fare is only 5 cents now, and that it will be only 5 cents with the city as a partner in the enterprise, notwithstanding that it may be so agreed upon and stated in the lease, because they must pay the full fare in one shape or another, whatever it may be. The mere fact that the rider does not pay it on the car should not blind him to the fact that the cost of service must be and always is paid in full in some way.

### The Five-Cent Fare Policy

It becomes necessary for the city to lend its credit in financing a public utility, in which the income does not meet the cost of service, only because the city can transfer the resulting loss to the citizens through taxation. The citizens bear the burden of loss in either case. The company, not having the resource of public taxation, would face bankruptcy under the same conditions.





In the case of port development, where the city is in competition with other cities for foreign and domestic shipping and where many factors in the problem are external to the city and not in its control, there may well be city aid in its development. The transit problem, however, is an internal problem, of local interest only--a monopoly of local transportation wholly within the city's control, and containing within itself all the means needed for its solution. No financial aid need be extended by the city if the public insistence upon the 5-cent fare be temporarily abandoned.

As shown elsewhere in this report, should the comprehensive system be built at a cost of say \$60,000,000 and be in operation in 1921, as per Plan No. 16 of the 1915 Annual Report of the Department of City Transit, under the terms assumed, the resulting car fare is estimated to be about 5.59 cents, which is about 8 per cent. higher than the present fare of 5.166 cents, or 12 per cent. higher than the ideal 5-cent fare.

If the "Progressive Step" program, herein outlined, be adopted, and Steps Nos. 1 and 2 be in use in 1921, under the same assumptions, the fare required has been estimated at 5.30 cents--about 3 per cent. increase above the present fare.

All propositions heretofore submitted have been on the assumption that under the lease of these lines to the Philadelphia Rapid Transit Company the city would assume all excess fare over 5 cents up to the limit of full interest and sinking fund on the bonds issued for the construction of the lines, thereby paying about 12 per cent. of the car fares of the riders in 1921.

Should the city-built lines be leased on a basis of a 5-cent flat fare (as collected on the cars) with universal transfers, the annual loss resulting is estimated to be in 1921, for the complete system:

59  
cents x 555,000,000 passengers = \$3,275,000,

100  
or, on the program herein outlined:

30  
cents x 555,000,000 passengers = \$1,665,000.

100-

As these losses (which include the compensation to the Philadelphia Rapid Transit Company for loss of revenue due to the abolishment of the 8-cent exchange tickets) must be borne by the city up to the limit of the full interest and sinking fund charges, all plans heretofore have proposed that the city shall meet them by a tax on real estate.

It may be assumed that this will require an increase in 1921 of say 12 per cent. for the complete system, or perhaps 5 per cent. for the smaller system. Why should this be done? Why should not the city insert in the lease of the lines a clause providing for fare adjustment to meet the total cost of service which may



be outlined as follows:

"Before the operation of any part of the complete system of rapid transit lines is begun the question of the proper fare to be charged in order to meet the cost of the service rendered shall be reviewed and its proper amount determined by the Public Service Commission of the State of Pennsylvania, and the lessee and the Department of City Transit shall work out the details. This fare, when adjusted, shall be subject to reduction when cost of service warrants."

The probable fare required can only be approximately estimated now, as it will be affected by the amount of construction authorized during the period of inflated prices.

For example, under such a provision of the lease, for the year 1921 and thereafter until the cost of service warrants a re-adjustment in the city's tax, the fare, if the complete system be in operation as per Plan No.16 of the 1915 annual report of this department, will average:

$$5.166\phi \text{ (lessee's present fare)} + 0.425\phi \text{ (city tax)} = 5.591\phi \\ \text{per complete journey;}$$

or, if Steps Nos. 1 and 2 only of the complete plan be in use, the fare will average:

$$5.166\phi \text{ (lessee's present fare)} + 0.134\phi \text{ (city tax)} = 5.30\phi \\ \text{per complete journey.}$$

The lessee's portion of the fare in this illustration has been taken at the present rate in order that the loss by abolishment of 8-cent exchanges to the company may be fully met.

Provision should be made in the lease for the corresponding increase in the city tax portion of the fare as more lines are added. It should be understood that the figures just given are for illustrating the principle only. The portion of the fare representing the city's tax is levied to meet the interest on bonds issued to pay for the new rapid transit lines. It should be collected by the lessee and turned into the city's treasury exactly as in the case of the lease of the city's gas works. This tax should produce the revenue needed to meet the city's obligations:

$$0.425\phi \times 555,000,000 = \$2,361,000 \text{ interest and sinking fund} \\ \text{on } \$53,082,000 \text{ bonds.}$$

$$0.134\phi \times 555,000,000 = \$744,000 \text{ interest and sinking fund} \\ \text{on } \$17,506,000 \text{ bonds.}$$

Should not this plan be preferable to any heretofore proposed, and meet all requirements of the problem? Under it, as the result of adding about one-half cent to each car fare, commence-





ing in 1921,

- (a) The citizens get any and all lines as and when they order them, the 8-cent exchanges are abolished and the tax rate is unaffected by the transit problem,
- (b) The city gets its interest and sinking fund charges
- (c) The present rate of fare of the lessee (the Philadelphia Rapid Transit Company) will not be disturbed.

Hence all parties interested should be satisfied.

It will not be attempted here to furnish details as to how this average fare can be secured practically. That must be left to be solved in connection with the lease of the lines. It should be arranged justly and equitably and it is entirely feasible. The principle must be settled now. Shall the real estate taxes be raised 12 per cent. in 1921, or the car fares raised one-half cent? The interest must be met then if the lines are built.

The question involved is not a moral one of right or wrong-- it is a question of expediency, of determining whether the citizens who enjoy the benefits of a service should pay the full cost of the service which must always include a proper return upon the value of the plants which supply it.

The disposition to transfer charges for public utilities is simply an indication of the public desire to escape from taxes wherever possible, and results from a fallacious idea that a transferred tax is an averted tax.

In order to make this report absolutely clear and prevent any misunderstanding of the figures and facts given herein, I desire to emphasize the following statement, which appears in substance in other places in this report:

All the subway and elevated lines included in the "Taylor Plan," with only such changes as I have suggested regarding the City Hall section and the loop, can be built and the two systems unified without any increase in the tax rate, if the people are willing to pay an average fare estimated not to exceed 5 3/4 cents commencing in 1921, which will take care of the city's interest and sinking fund charges. This fare may be reduced gradually until it reaches 5 cents about 1960.

Elsewhere in this report is explained the alternative--the effect on the tax rate if the fare be not raised.

#### Independent Operator of City's Lines

As stated elsewhere, this and all previous reports made by the department have assumed and recommended that the existing and the new systems be operated in combination.

Should such a result finally be found to be impossible or in-



expedient, for reasons financial or otherwise, an alteration of routing will be desirable as the lines will then be operated in competition with the existing system and not as a supplement to it.

Map No. 1 shows the suggested arrangement for a competitive system. The map clearly shows that a system of this kind would work great damage to the existing system, but that it could later be used to supplement that system. By the general law of economics the new lines, though originally leased to an independent operator, will probably at some time be unified with the existing system.

#### Burden not Realized Now

A seductive feature of the present financial plans for the construction of the rapid transit lines is found in the proposal to issue city bonds under the provisions of the recent act providing for a life of 50 years, the payment of the interest and sinking fund charges during the period of construction, and one year thereafter, out of the proceeds of the bonds themselves, and a gradual sinking fund--all features expected and intended to place as much of the burden as possible on posterity. The seductive feature is in the fact that the burden will not be realized until possibly four years after the lines are authorized.

#### Data Forming Basis of This Report

The technical data upon which this report is based are the same as those upon which previous reports of this department have been based.

#### General Principles

As it is very desirable to make a municipally-owned rapid transit system a commercially successful business proposition, or as nearly self-supporting as possible, in order to avoid the alternative of making up from general taxation the deficit in the city's bond interest and sinking fund, it becomes most essential to observe in the design of the system certain principles which may be fairly regarded as axiomatic.

These principles may be briefly stated as follows:

1. Locate rapid transit lines in general along direct routes where the congestion has become too great for surface lines to run at fair speed and to properly take care of the traffic; the main object of rapid transit lines in a unified system is to supplement the surface car service by removing therefrom a large part of the passenger traffic and placing this traffic above or below the street level where, being free from interference with other traffic, much higher speed can be maintained and larger and heavier trains operated.

2. Construct each line in progressive steps, completing the most urgently needed section first and adding extensions or





branches only as their necessity or feasibility is demonstrated.

3. Plan the system as a comprehensive whole conforming to the ideal plan as nearly as local conditions permit and with the underlying idea of operating all trains on the principle of through-routing as far as possible, as this is now universally conceded to be the proper method of operation. Avoid the so-called "looping" method of operation wherever possible.

4. Construct the minimum amount of subway line, as this is the most expensive form of construction and hence carries the highest interest charge per mile. As a corollary of this, subways should be built only where no other form can be used or accepted on account of high property damages resulting from the use of any other form, or for esthetic reasons, or where some special or peculiar conformation of the streets makes a subway imperative.

5. Construct rapid transit lines to such points only in the outlying districts as will provide sufficient traffic to load the lines to an economical amount. Beyond such points the traffic should be carried by either surface lines or by other cheaper forms of high-speed construction.

6. Locate rapid transit lines in the business district so they will act as channels through which the main traffic flow between the residential and business districts may be conveyed without confusion or congestion, and so as to require a minimum of transferring to reach the rider's destination.

7. Utilize existing surface car facilities to the fullest extent possible and supplement them by high-speed surface extensions into the suburbs, located on wide streets or private right-of-way so as to provide economically for the development of the territory adjacent or tributary to the rapid transit lines.

In my judgment, some of the plans and recommendations offered in the 1915 annual report of this department by my predecessor should be modified in accordance with the foregoing principles.

While it would be much easier to accept such plans and recommendations as promulgated than to convince the public that it is desirable from their standpoint to make alterations in them, I believe it will be to the city's interest financially and to the general welfare of the passengers on these lines to make certain modifications which will tend to expedite, and also facilitate traffic movement to a greater degree than the plans formerly recommended.

The general location of the main radial lines cannot be improved and such lines will serve the city's needs adequately for many years to come, but the arrangement of the loop or terminal tracks in the delivery or business district of the city I believe to be capable of improvement so as to permit a more economical use of the city's streets and a more efficient method



of through-routing the rapid transit trains.

Also, for financial reasons, I do not favor the construction program as outlined--as a business project it should be broken into progressive steps to allow the city and the lessee intervals of time in which to digest and assimilate each addition to the system.

### The Financial Difficulties of the Problem of City-Owned Lines

Rapid transit problems have developed in all large cities as one of the penalties that they must pay for bigness or for over-size.

Usually no such problem exists until the city reaches 500,000 population, or its residential section extends more than three miles from the business district.

The difficulty of financing rapid transit propositions is that they must be built originally with train and passenger capacity largely in excess of the existing needs. They do not increase the total volume of riding in a city to any great extent and the greater part of their traffic is taken from other lines from which they draw by virtue of providing better, quicker or more frequent service, or of providing satisfactory service at a lower fare.

The Germantown district today is served by two direct lines of surface cars from the center of the city, and by two steam roads giving frequent service. The complaint from this district is that the surface cars are too slow and on the steam cars the service is too infrequent and the fare is too high. What is desired by these residents is the quick and comfortable service of the steam roads at the 5-cent fare limit together with the frequent service of the surface roads. This is equivalent to an improvement of service, and a fare reduction at the same time. The problem which the city is attempting to solve seems to have but two answers--either a higher unit fare than 5 cents per passenger, or the city must assist the operator of the lines by assuming at the start a large share of the interest charges on the rapid transit system.

### Why Does The City Engage In This Experiment?

Because the proposed rapid transit lines are not attractive to private capital.

A city is an assemblage of people organized for the purpose of securing the benefits--social and commercial--of combined service and effort. A city will continue to grow so long as the conditions of life therein are acceptable and inviting. Such growth calls for a larger land area for residential purposes each year, and such land is now located chiefly in the city's suburbs. New and suburban development causes a diversion of tenants, especially from the older and less desirable sections of the city, to those new sections where they can obtain for the same or less





rent more desirable surroundings. The newer and suburban districts prosper at the expense of the older parts of the city lying between the first and fourth mile zones.

Rapid transit lines do not directly affect the growth of a city, as this growth is from two sources:

1. By accretions from without, and
2. By increase of population from within.

These lines shift population and traffic from one district to another more favorably situated.

The population of a city consists of people who are engaged in commercial or mercantile industries or manufacturing, either as employers or employees, and the transit facilities of a city are primarily not for pleasure puposes, but to convey the population between their homes and their work, or between their homes and trading points.

As the main city grows constantly on the outer fringe it will be found that building development usually follows close upon the introduction of so-called city improvements (grading of streets, sewerage, water and gas supply, etc.).

Surface transit facilities in the past, while such development was within the four-mile circle, have usually kept pace fairly well with the demands, but as the residential area is being pushed farther and farther from the city's center there is more reluctance on the part of the street car companies to follow the development. Further, as the distance traveled daily by riders increases, more need is felt for quicker transit than surface lines can provide. This has produced a demand which the present company in Philadelphia is not able to assume the financial burden of supplying. This fact only has brought the city face to face with the probelm which it is proposed to solve by the city lending its credit and assuming liability for interest on the cost of constructing such facilities.

Rapid transit lines, while in general providing for the comfort and convenience of the traveling public, have also a commercial side.

Such rapid transit lines as have been built in the past were originated as business ventures with the primary view of making money for their builders. In very few cases, however, have the expectations of the original builders or promoters been realized.

#### Why Called An Experiment?

This enterprise upon which the city has embarked has been called an experiment; it may be asked why is it considered an experiment?

It is a test on a large or working scale of an untried combination of elements to ascertain the truth or practicability of



the principles underlying the combination.

In no other city, particularly one with the population and covering the area of Philadelphia, has it been attempted to combine and unify the operation of surface and rapid transit systems, giving free interchanges at all points of intersection, on a 5-cent fare, the routes and extensions being under the control of a councilmanic body, and it being tentatively assumed that all the burden of the construction of the system shall constitute the city's liability--no guarantee by company to protect city from loss.

The transportation system in Boston resembles what is contemplated for Philadelphia more nearly than that of any other city. But in Boston the program has been so arranged that the facilities have been added gradually over a 20-year period, and the entire burden carried by the Boston Elevated Railway Company. Up to 1915 not one dollar of the city's money has been used to make up deficits in the city's interest due to lack of income.

The New York leases under the "dual system" resemble what is here proposed, but in New York no attempt has been made to secure a unified system. In the New York territory are three high-speed systems and four surface systems operating independently. The results in Boston are not satisfactory to the lessee company, but appear to be to the city.

In New York City the "dual system" will not be in use for some months at least, so it is too early to judge results.

#### Main Issues.

The real issue to be decided is not "Shall the Broad Street Line stop temporarily at Erie Avenue and at Spruce Street?" but the much larger issues, "Shall this undertaking be handled on a business or a political basis; shall the city build according to its necessities or according to unwarranted sectional demands; shall councils be guided by the advice of its director of transit (or a board of capable and locally disinterested men), or by the demands of aggressive and energetic citizens, actuated by local interests?"

#### A STUDY OF THE RAPID TRANSIT PROBLEM IN PHILADELPHIA WITH SUGGESTIONS FOR ITS PROPER DEVELOPMENT

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#### Summary of Report.

The purpose of this report upon the rapid transit problem in the city of Philadelphia is to call attention to certain features which I regard as unwise and inexpedient in the construction and financial programs for the vast undertaking upon which the city has taken the initial steps, and to present suggestions as to construction and the methods of financing the construction cost and deficits from operation in interest charges that should effect (a)





economy in its construction, (b) a proper conservation of city funds and revenue, and (c) an improvement in the service of the system.

The program upon which the city has entered is fully set forth in the report of this department for the year 1915, which contemplates and recommends the immediate construction of a comprehensive system of rapid transit lines extending into several outlying districts of the city, involving on the city's part an initial investment of \$56,000,000 or more of city funds for construction (in addition to private funds for equipment), and requiring annually an additional investment from city revenue to meet deficits in interest charges.

= This report is not to promulgate a new plan of routes or lines, and it clearly sets forth the fact that in the general routes and extent of the lines as laid down in all former reports between the suburbs and the business center of the city no change is suggested as they are not open to criticism. A change of lines and of location of stations within the business district is suggested for reasons fully given.

It assumes that everyone will admit that this comprehensive system is intended to take care of the growth of Philadelphia for forty years to come--a metropolitan Philadelphia with 3,000,000 population.

It assumes, as all previous reports have done, that whenever and whatever rapid transit lines are built, they will be operated by the Philadelphia Rapid Transit Company, the surface and rapid transit lines being operated as a unified system.

It also clearly shows that the extent of the financial burden resulting from the construction and operation of this system will depend directly on the answers to the following questions in which every citizen is financially interested, either directly or indirectly:

- (a) What lines shall be built?
- (b) How far shall they be built from the center of the city?
- (c) When shall they be built?
- (d) Who shall pay for them?
- (e) Shall lines to develop suburban property be built with city's funds; or shall the property benefited share in the cost?
- (f) Who shall operate them?
- (g) Upon what terms shall they be leased?
- (h) How shall deficits in city's interest charges on bonds be met?



- (i) Shall the burden be put upon the city taxes on real estate and personal property, or upon the car rider?
- (j) If deficits are to be met out of the city revenue, what effect will it have on the tax rate?
- (k) If deficits are to be met by an increase in fare to the car rider, shall it be a uniform increase, or shall the riders on the rapid transit lines only pay the increase?
- (l) Why should the city engage in this experiment in transportation?
- (m) Why is this called an experiment?

All these questions are fully discussed in the body of the report with a view to explaining some points not clearly brought out in former reports, and discussions of this experimental undertaking upon which the city has now embarked.

It assumes what all previous reports have shown--that the operation of the unified system will not produce sufficient net income to meet the requirements of the operator and the city's interest and sinking fund, thereby creating a deficit in the city's account.

It shows what causes these deficits, of what they are made up, and suggests methods of meeting them.

It shows that the average fare per journey on the present system is in excess of 5 cents, and that 5 cents flat is inadequate to furnish the required net income.

It lays down the general principles on which rapid transit lines should be designed, and also contains a general discussion of rapid transit in modern cities, showing what would constitute an ideal system of unified operation, and shows the true function of surface and rapid transit lines in unified and competitive operation. It discusses at length the proper distribution of the burden which will result to the city from the operation of this system, and suggests methods of financing which should serve to check unwarranted expansion of the system and which should reduce the operating deficits.

Two appendices are added treating on the principle of assessing the cost of public improvements upon the territory receiving the benefit of such improvements.

The features of the city's present program, which I regard as unwise and inexpedient of:

1. The undertaking of the whole construction program at once during an era of abnormally high prices and before the operator of the system has been determined upon, and before settlement upon the terms of a lease for the operation of the lines upon their completion.





2. The financing entirely by city funds, of the construction of branch lines in usburban or undeveloped districts where the traffic will for many years be inadequate to warrant such outlay.

3. The diversion from the city's treasury of revenue from the general tax funds for the payment of deficits in interest and sinking fund charges on city bonds issued to pay for the construction of the system.

4. The location of certain lines and stations within the business district and the consequent method of routing trains.

#### The Suggested Improvements in the Program Are

1. That the terms on which a comprehensive system of rapid transit lines can be leased to an operator be ascertained, and that no more construction than is now authorized be undertaken until it is definitely known by whom the entire system is to be operated and upon what terms.

2. Divide the comprehensive plan of routes into two parts:

- (a) The sections forming the trunk lines, in and through the 25-minute street car zone from City Hall. These lines to be considered as terminals and trunk lines, and being for the general benefit of the city as a whole, they should be financed on city bonds.
- (b) All extensions and branches of such lines into outlying or suburban territory are to be considered as for local benefit chiefly, and the cost of construction of such extensions and branches should be borne by the property in the territory served by them. As legal authority for such method of financing these extensions is lacking, it is suggested in this report that proper laws be passed at the next Legislature to empower the city to make use of this method at its option. Extensions to the trunk system will not become necessities immediately, and as even the trunk system will not be ready for use under three years from date, ample time is available for obtaining such legislation.

3. Construct at this time of abnormally high prices only such portion of the trunk lines as may be considered the necessary and terminal sections, viz.: Part of the Broad Street Subway and the Frankford Elevated--the subway to extend from Spruce Street to Erie Avenue or Pike Street with a line on Walnut Street from Sixteenth Street to Eighth Street, on Eighth Street to Race Street and, by the opening of Ridge Avenue between Eighth and Ninth Streets, on Ridge Avenue from Race Street to Broad Street, the line from Ridge Avenue to Pike Street to be 4-track and the remainder 2-track. The Frankford Elevated to terminate for the present at Bridge Street. All Terminals to be considered temporary only, and sequence of construction of the remainder of the trunk routes to be the subject of later determination as conditions warrant.

It is suggested that there be two tracks only in Broad Street



at Market Street, and that the City Hall Station be located just north of City Hall instead of under it, thereby bringing the platforms much nearer the surface of the street, and greatly lessening the cost of construction, and separating this station further from the Chestnut Street station, and reducing congestion at City Hall. (See Maps Nos. 6 and 7.)

4. Construct at such later dates and to such extent and in such sequence as they may be properly authorized, the remainder of the comprehensive system of lines needed and now contemplated.

5. Take steps to obtain the necessary legislation to empower the city to finance the construction of the extensions by means of bonds, the interest on which can be met by local assessment on the property in the districts served.

This report endeavors to make clear that the fundamental issues involved in this problem now before the people are not personal, but municipal.

#### These Issues Are

1. Shall the city in return for the burden it assumes receive a fraction of the financial profits which will result from these lines; or shall these benefits all flow toward the enrichment of a small number of suburban land owners and operators in real estate?

2. Shall the city embark in a vast experiment in city transportation gradually and with fair business caution; or shall it provide the facilities now for two generations ahead and assume the increased liabilities which result?

3. Shall the burden of deficits be placed on the property of the citizens in the shape of an increase of taxes? or,

4. Shall this burden be placed in part at least on the ones benefited, namely, on the car riders by an increase of fare?

These questions must be answered by every citizen for himself--upon him alone rests the responsibility for the results of the decision.

#### PRESENT PLANS FOR RAPID TRANSIT DEVELOPMENT.

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#### Construction Program of Taylor Plan.

An examination of the past reports of this department will confirm the statement that the final recommendation is an evolution from the original recommendation which covered only:

(a) The building by the Philadelphia Rapid Transit Company of the Frankford Elevated Line from Front and Arch Streets to





Bridge Street in Frankford.

(b) The building by the Philadelphia Rapid Transit Company of an elevated line to Darby, connecting with the present Market Street Elevated Line at Thirtieth and Market Streets.

(c) The building by the city of the Broad Street Line from League Island to Pike Street, with two elevated branches and the Delivery Loop.

The estimated investment of the city in this system was about \$35,000,000.

In the original report the Parkway Line was not considered, or recommended. Owing, however, to the insistent demands of the residents in the northwestern portion of the city, the Northwestern Line via the Parkway and Twenty-ninth Street was added, and a branch from the North Broad Street Subway was projected into Germantown, and by the direction of Councils (the probable result of local demands) the extension from Bridge Street to Rhawn Street of the Frankford Elevated was included. A high-speed surface line on private right-of-way from Bridge Street to Byberry was finally added, and changes were made in the subway portion of Broad Street above Pike Street, bringing the total estimated cost--using the former estimates--to about \$62,000,000 for the entire system. Two lines only have been authorized by City Councils to date and toward their construction \$6,000,000 has been appropriated, leaving \$56,000,000 as the estimated cost of the remainder of the work, based upon prices ruling at the time the estimates were made.

On account of the favorable prices obtained on the contracts let during 1915, which averaged from 15 to 20 per cent. below the estimated cost, the department felt safe in assuming that, if the contracts were let promptly during the period of low prices, the sum of \$50,000,000 would probably complete the entire program, and this amount was accordingly requested for the construction program.

It is very unfortunate for the city that the low prices heretofore prevailing are no longer available--a sharp rise in all building material and labor having taken place in the last few months. Prices are now 20 to 50 per cent. above those existing a year ago, and as a business proposition, ignoring the political and sentimental aspects of the program, I think the city would be exceedingly unwise to construct as one unit or step at this time such a comprehensive construction program, which cannot be justified for traffic or business reasons, and which will have capacity years in advance of the needs of the city.

In a program of this magnitude, running over a construction period of at least three years, a contractor is bound to protect himself, and owing to the European war no one can safely predict the course of prices three years in advance.

This is only one of the many reasons for advocating that the final program, which is intended to take care of Philadelphia's



transportation needs for a period of thirty to fifty years, should be broken into steps.

### Objections to the Construction Program of the Taylor Plan

My objections to the construction program are:

1. It is a much too comprehensive system of construction for the city to attempt to digest in such a limited period as three years. It was born of an optimism concerning the growth of Philadelphia which is not warranted by the existing conditions or statistics. It is intended to take care of the rapid transit needs of the city of Philadelphia when the population reaches 3,000,000. It is not a good business venture to construct such lines so far in advance of their need, as no man can safely predict the direction of growth in the city in the next two or three generations. I believe in designing the system with a proper amount of foresight, and in making provision for the future in a manner which seems to be in accordance with the probable needs as measured by the city's characteristics of growth and past history. I earnestly wish to see Philadelphia profit by the errors and mistakes made by other cities, and not spend money recklessly and without regard to the carrying charges, simply because the city has sufficient borrowing capacity available.

2. I do not advocate the city going into or committing itself to an extensive construction program in advance of the question of operation of the lines being definitely settled; in other words until it is definitely known whether these lines will be operated by the Philadelphia Rapid Transit Company or by an independent operator. This question is a vital one, and the commercial success of the system depends largely on the method of operation and the terms of the lease. The discussion of this matter elsewhere should make clear my contention that this question of the lease should be definitely settled before the city commits itself to a program affecting its welfare for generations to come.

3. To carry out this construction program at the present time, in this era of high prices, will doubtless nearly--if not entirely--exhaust the city's credit. It may be a good political move to do this, but in my judgment it is not good business, and my observation has been that any political position not founded on a sound basis is an error in the long run. Political theories are often wrecked by economic facts. The citizens as a whole should realize that any warranted improvement benefiting one part of the city reacts beneficially on the entire city.

This report should make it plain that the city contemplates the gradual building of a comprehensive system which will fully serve the needs of the entire city.

### The Proposed Operating Lease of City-Built Lines

Regarding the second element of the "Taylor Plans," namely, the operating lease, I may state that the vital importance of securing an operator of the city-built lines on terms satisfactory to





the city, was early recognized and a suggested form of lease, following the general lines used with the "dual subway" contracts in New York City, was submitted by the director of this department to the controlling officials of the Philadelphia Rapid Transit Company.

Nearly two years have elapsed since these officials signified their willingness to make such a lease, but inasmuch as the tentative draft contained provisions for protecting the company against part of the losses through business diverted to the city's system, the department felt that it should have a reciprocal protection and insisted that the Union Traction Company, the principal underlying subsidiary of the Philadelphia Rapid Transit Company, should become jointly responsible with the Philadelphia Rapid Transit Company, or in other words, the endorser of the lease. Up to the present time the Union Traction Company has not signified its intention to participate in the negotiations.

The department believes, in view of the financial history of the Philadelphia Rapid Transit Company that the city's position in this matter is entirely reasonable and proper--simply business precaution.

Any form of operating lease which acts so as to protect the Philadelphia Rapid Transit Company also adds additional security to the subsidiary company and consequently increases the stability of the subsidiary.

It has been assumed in all the recommendations and discussions made by this department to date, that eventually an agreement will be reached with the Philadelphia Rapid Transit Company by which they will become the operator of the city-built lines, and that the present surface and subway-elevated system would be operated jointly with the city-built lines.

For reasons given elsewhere in this report I strongly urge that no large amount of construction work--at least no work beyond the first and second steps described elsewhere in this report--be done pending the execution of a lease.

It is vitally important that the question should be settled as to who is to operate this system, and upon what terms, and what routes are to be involved, in order to determine the financial results to both the city and the lessee.

The contract between the city and the Philadelphia Rapid Transit Company, popularly known as the "1907 Contract," contains a third clause, reading as follows:

"In case at any time in the future Councils shall, either of its own initiative or upon petition of any of the citizens, determine that new lines of surface, elevated or underground railway should be constructed within the city, it shall, by ordinance, determine the route of such line, and the terms and conditions under which it shall be built, financed and operated, and the company shall have ninety (90) days



( after the passage of such ordinance to take such corporate action as may be necessary to accept the same, certified copies of which action shall be duly filed with the Mayor within said period of ninety (90) days; but if the company shall fail to accept said plan within said period of ninety (90) days, or shall reject the same within said time or, after accepting the same, shall fail to enter upon the work in good faith and prosecute the same as required in such ordinance, then the city may offer the right to construct and operate said road under said terms and conditions to such other persons, company or corporation as may be willing to undertake the same: PROVIDED, HOWEVER, That any rights acquired by the company under this section, and the section immediately preceding, shall be subject to all the terms and conditions of this contract with respect to a voice in the management, supervision of accounts, division of profits after the return of six (6) per cent. upon the capital invested, and the right to ultimately acquire all the interest of the company at the expiration of fifty (50) years from the date of this contract: AND PROVIDED FURTHER, That in the case of the construction of new lines the capital necessary therefor shall, as far as practicable, be raised upon bond issues bearing the guarantee of the company as to principal and interest, which bonds shall be issued in denominations of one hundred (100) dollars, five hundred (500) dollars, and one thousand (1000) dollars, and be offered to public subscription but in no case shall they be sold for less than par; and to such extent as it may be impracticable to finance new enterprises upon bonds, or in case additional capital is needed for the purpose of extensions, additions and betterments to existing lines, power or equipment, the same may be raised by an increase in the capital stock of the company, but only with the express consent of the city, and all such increases shall be full paid at par in cash, and be subject to all the provisions herein contained with respect to the original thirty million (30,000,000) dollars of capital stock of the company."

On July 2, 1915, an ordinance passed by Councils was approved by the Mayor, authorizing the construction of the Frankford and Broad Street rapid transit lines, and \$6,000,000 has been appropriated toward their construction. This clause distinctly states that Councils shall "by ordinance determine the route of said such line and the terms and conditions under which it shall be built, financed and operated." The above ordinance determines the route, and partially sets forth the terms and conditions under which it shall be financed, but is absolutely silent as to the operation of the road. Up to date the Rapid Transit Company has shown no desire to operate these lines as is evidenced by the fact that they have not notified the city of their desire to submit a proposition for the operation of these lines. The city is therefore legally free to negotiate with other parties as to terms for the operation of these two routes.

The wording of the "1907 Contract" apparently contemplates separate and independent contracts for each of the lines authorized. The contract evidently did not contemplate an extensive and comprehensive system as contemplated and recommended in





the complete "Taylor Plans." The contract clearly recognized that the building, financing and operating were interdependent and so linked together that one element cannot be disregarded without nullifying the intent of the contract. This emphasizes again the absolute need of settling the question of who is to operate these lines before the construction is undertaken--to determine in advance whether this is to be a part of the unified system or supplementary to the existing system, or to operate independently as a direct competitor of the existing system. If this be not determined in advance of construction, the city may be placed in the position of hanging on a completed subway a sign frequently seen, "This building for rent--will be altered as required to suit tenant." That this is not a groundless fear is shown by the fact that New York City, after the completion of the first subway, now 12 years ago, designed a comprehensive system of subways known as Tri-Borough Route, and started on its construction hastily and without any knowledge or certainty by whom the system would be operated. Parts of this system, representing many millions of dollars, were completed and lay idle for several years; upon the final execution of the lease the system was divided between two operating companies and some work which had been done on abandoned routes was lost. Owing to the confusion which resulted from the delay in changing routes the city has lost a large amount of money and interest charges on completed sections of the route which had been standing idle and unused for many months. It is largely to avoid such errors and to save the city from financial loss that I urge and insist that the question of operation be settled in advance of any large amount of construction and the form of lease determined so that the system, when built, will be in accordance with the lease and conform as nearly as possible to the compromised wishes of the city and the operator.

The preparation and negotiation of a lease of this character for a long period, involving not only the liability for large sums upon the city's side, but the welfare of a large transportation company as well, involves a serious responsibility, and will require the best legal and technical talent available, as will appear from a study of what possibilities are involved in this, the most vital feature of the entire undertaking.

In the determination of what is just and equitable there is much room for honest difference of opinion and the city must be very careful to avoid making an unwise contract, as many now claim was done when the Contract of 1907 was executed between the city and the Philadelphia Rapid Transit Company.

Owing to the urgency of the situation the city should promptly arrange for the renewal of negotiations with the Philadelphia Rapid Transit Company, and secure from them a definite expression as to their willingness and ability to presently agree upon and execute a satisfactory lease; otherwise the city must look for an independent operator.

It will be necessary to modify some features of the contemplated program if the lines are to be leased to an operator independent of the Philadelphia Rapid Transit Company. (See Map No. 1)



Should negotiations for a lease with the Philadelphia Rapid Transit Company fail, the city should at once formulate terms under which it is willing to lease to an independent operator and advertise these conditions so that bids can be secured.

The proposals up to date have been presented by the city to the Philadelphia Rapid Transit Company. The Philadelphia Rapid Transit Company has made but one counter-proposal, dated March 25, 1914, and later all negotiations were broken off by the company.

An earnest effort to co-operate must be made by the Philadelphia Rapid Transit Company and by the Union Traction Company, its subsidiary, if this lease is to become a fact.

In the New York situation the first contract, involving about \$39,000,000 for construction, carried with it a fifty-year operating lease of the system.

It is not likely that the city of Philadelphia could carry out its program on such lines, as conditions here are radically different from those which existed in New York sixteen years ago.

#### GENERAL DISCUSSION OF RAPID TRANSIT LINES

##### Advantages of Rapid Transit Lines

The demand for rapid transit facilities in Philadelphia is partly the result of irritation over the fare question and partly the result of a real need for such facilities which exists in certain sections of the city. The residential section of the city has expanded in area until the service of the present surface system is no longer adequate.

The average citizen has come to feel that not more than 30 minutes should be spent in traveling from his home to his business, and probably, due to the socialistic ideas now prevalent, he has come to believe that if the present company cannot supply these facilities, the city should supply them. He regards this as a proper field for municipal endeavor, and does not realize the magnitude of the problem or the burdens which it involves.

Rapid transit lines are simply a development of city passenger transportation from surface lines, and their function should be to extend the usefulness of those lines and not to compete with them.

The two advantages possessed by rapid transit lines over the surface cars lie in their higher speed and larger capacity.

The higher speed results from their being free from interference with other traffic. The speed of the lines is a direct function of the number of stops per mile. With ten stops per mile the schedule speed would vary but little from that of the present surface cars. With two stops per mile a schedule speed of 16 to 17 miles per hour is entirely feasible. With one stop in two miles or





over, a schedule speed of 25 miles per hour or higher may be attained.

The capacity of the lines is a direct function of the length of the trains and their frequency.

#### Results Due to Location and Routing

In all plans for rapid transit in Philadelphia will be found the feature that each is so designed as to supplement the existing transit facilities--not to act primarily as a competitor, although they must so act to some extent in the districts through which they operate.

The lines have been so located as to shorten the time of travel between the residential and business districts of the city, and hence are located on as nearly radial lines as the street formation of the city permits. Since it has been found that a rapid transit line without feeders does not draw patronage from the territory through which it runs, to a greater distance than one-half mile on each side of the line, the natural inference is that such lines should be not more than one mile apart, and the recommendations in the Transit Commissioners report of 1913 are based on this spacing. This report clearly indicates also the great advantages resulting to the citizens from the utilization of the present surface lines as feeders to these lines, it being assumed that the two systems can be operated as a merged or joint system. This report also clearly shows that the advantages from rapid transit lines will largely accrue to the business district and to the riders from, and owners of land in, the district lying beyond a radius of four miles from the business center of the city.

This system is not intended principally for the city of to-day--which lies mostly within the four-mile circle-- but for the suburbs of to-day, the city of the future, the city of a million or more people who fifty years hence will reside in this area beyond the four-mile circle.

The comprehensive system of new lines now planned will mean a per capita investment of about \$40, based on the entire present population; but \$120 or more, based on the population chiefly benefited (suburban).

The chief advantage to the patrons of this transportation system lies in the reduction of the time needed to travel from their homes to the business center or their work. This is recognized as desirable--as tending to a better standard of living conditions, but in few cases can any money value be assigned to this advantage, as the saving is not in commercial or salable time, nor does it add to the rider's daily cash income. A fraction of the time now used in traveling will be diverted by the riders to other uses, mostly non-commercial--non-producing.

The chief financial beneficiaries of these new lines will be the real estate owners, operators and builders, in territory tributary to the lines, since, owing to the higher speed of these lines, land lying considerably more distant from the business district of the



city than the present residential district is brought within the same time limit.

The direct result of this can be shown to be a shifting of the population and an increase of the residential area outside of satisfactory surface car limits, increasing the average length of passenger haul. The rider in many cases simply moves out on the new lines until his traveling time becomes approximately what it is on the present system. It is greatly to be regretted that under present laws it is impossible to assess any of the cost of construction of such a system upon the property benefited. It is entirely a fallacy to assume that the increase revenue from increase of general taxation due to such development will recompense the city for its transit development, as there is no such surplus tax income resulting.

#### The Broad Street Line and Loop

The fundamental idea underlying the location of the Broad Street Subway was to utilize the main thoroughfare of the city running north and south to provide rapid transit in a north and south direction equivalent to that provided on Market Street in an east and west direction. It is well recognized that while Broad Street is the main north and south thoroughfare of the city it has never developed as a business street to the extent that its central position would warrant. The larger trading establishments of the city are located along the east and west streets of the business district, principally east of Broad Street, and it was early found from the traffic investigation that a rapid transit line serving Broad Street only would be undesirable, as the destination of about 60 per cent. of the patrons of this line was in the territory east of Broad Street. This would have brought about a wholesale transferring of the passengers either to the Market Street Line at City Hall Station, or to the surface lines to an extent that could be provided for only with great difficulty. It was, therefore, realized that it was absolutely essential to carry part of this traffic directly into this eastern business district without transferring. A large number of studies were made and routes suggested and tried out. The so-called "loop" as finally decided upon and recommended in the original report of 1913 was the result of a compromise, and it is not necessary at this time to go into the reasons which forced or brought about its adoption. Some of the principal reasons have been given in former reports of this department.

#### Objections to Loop

My objections to the "loop" plan are based chiefly on its objectionably high cost for the service of one line only, as the Parkway Line which is to be connected to the "loop" in the City Hall Station cannot be operated on the "loop" when the Broad Street Lines reach full capacity, and its construction and operation violates Nos. 3 and 6 of the principles formulated on page 149. The "loop" feature, as planned, represents an outlay for the terminal of the Broad Street Lines of from 25 to 30 per cent. of the total





outlay.

The "loop" is in reality a form of "stub-terminal" for the North Broad Street trains with provision for through-routing North and South Broad Street trains on either side of the "loop", thus introducing much complication. The large loop recommended with seven stations located thereon, has the disadvantage of requiring about two miles of very expensive construction in order to serve three important stations only. The traffic figures in this department estimate that the distribution of passengers at the different stations on the "loop" will be as follows:

From North Broad Street:

To East and West Legs of the Loop:

City Hall Station.....	28.1%	
Chestnut Station.....	13.3%	
Eighth and Market Station.....	33.6%	75.0%

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To North and South Legs of the Loop:

Twelfth and Locust Station.....	2.4%	
Tenth and Locust Station.....	3.0%	
Tenth and Arch Station.....	9.4%	
Twelfth and Arch Station.....	10.2%	25.0%

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100.0%

These figures show that the Arch Street and Locust Street legs of the "loop" are inactive--about 75 per cent. of the total business being done on the Broad Street and Eighth Street legs. This makes clear the reason for recommending the modified plan by which the Eighth Street district is reached by the shortest route (via Ridge Avenue) and for using Walnut Street instead of Locust Street as a suitable connection for the Parkway Line in accordance with principles laid down. The station on the modified routes will be located so as to adequately provide for the traffic as estimated above. (See Map No. 2.)

These figures also make clear the great amount of congestion which will be produced at Eighth and Market Streets and at the Broad Street Stations near City Hall. They emphasize the necessity for a wider street at Eighth Street, especially more sidewalk width, and show the great desirability of separating the City Hall and Chestnut Street Stations as this plan contemplates. (See Map No. 7.)

The following is an extract from a paper entitled "Transportation and City Planning," presented by Milo R. Maltbie, Public Service Commissioner, New York City, at the Fifth National Conference on City Planning, held in Chicago, May 5 to 7, 1913: " \* \* \* There are several principles of considerable importance. IN THE FIRST PLACE, TERMINALS SHOULD BE ELIMINATED SO FAR AS POSSIBLE. THEY ARE COSTLY TO ACQUIRE, EXPENSIVE TO MAINTAIN, AND INCREASE RATHER THAN DECREASE CONGESTION. SO FAR AS POSSIBLE, THE LINES SHOULD BE OPERATED THROUGH A CITY AND NOT TERMINATE THEREIN."



The following is an extract from a paper published in the January, 1914, issue of "The Annals of the American Academy of Political and Social Science," entitled "RELATION BETWEEN TRANSIT AND HOUSING," by John P. Fox, Secretary of the Transit Committee of the City Club of New York. " \* \* \* For Philadelphia, Broad Street should be made the business axis, with a straight transit line from north to south and without the ill-advised delivery loop subway now planned, which would tend to duplicate in Philadelphia the evils of Chicago's congested business center."

### Through-Routing

The logical method of transportation in any large city must be on a through-routing plan to be efficient. This shows beyond question that a train should not pass through the delivery district more than once in each direction per single trip.

A rapid transit line for the purpose for which these are built in Philadelphia should be double-ended whenever possible, serving a residential district on each end and the business district in the central section, so that the expensive subway in the central section, which acts as a terminal of the two lines, may be used efficiently in both directions. This is known as "Through-routing" method of operation, which is eminently desirable, and the modified plans are so arranged as to provide for it. While the "loop" in the business district permits this routing of North and South Broad Street trains, the traffic from the two lines will not balance sufficiently to use the plan efficiently, hence the "loop" plan was selected. By balancing one-half of the North Broad Street traffic with the Northwestern Line and one-half with South Broad and Darby, the "looping" necessity is eliminated and better operation of trains secured.

### Discussion of Principle of District Assessment for Local Benefits

The principle of assessing the property for at least a portion of the cost of the city improvements necessary for its modern development is recognized in a more or less complete form in Philadelphia. It may be well here to discuss its application to this transit problem of Philadelphia and show how localities benefited should divide the burden.

The chief benefits resulting from the construction of rapid transit lines will accrue to two zones of the city: (a) the business district, which may here be defined as the district contained within a one-mile radius drawn from Eleventh and Market Streets, and (b) the districts lying outside of a circle drawn with a radius of four miles from the same point. The middle zone lying between the first and four-mile circles will probably be affected very little by these lines and only along the lines themselves.

As all estimates of growth of population in Philadelphia show that within fifty years or less the population in Philadelphia proper and the vicinity will exceed 3,000,000, and inasmuch as





the available land now lying within the four-mile circle is practically all developed, excepting south of Oregon Avenue, the future growth will be largely distributed over the area outside of the four-mile limit, and in this district will occur the greatest rise in land value.

Outside of the comfort and convenience resulting from the construction of these improved facilities, the direct commercial profits will accrue very largely to the two districts mentioned.

In the business district the direct result will be a much larger volume of business transacted, and consequently, a higher value for business locations in certain parts of this district.

In the outlying lands a large financial benefit will result to the land owner by virtue of these lines bringing this land into the market for residential purposes.

The method proposed in this report of financing these improvements is based on the idea of placing the burden of carrying charges on the district receiving the principal benefit.

The district lying between the one- and three-mile circles will receive comparatively little direct benefit from the building and operation of these lines, but there seems to be no feasible way of leaving this section of the city out of the calculation, as this land is already improved and fairly well served now by the present surface car system. Actually this zone should carry but a small part of the burden, and that part only on the section lying along and benefiting by the lines.

While the rapid transit lines will draw some business from the territory inside of the four-mile circle, they must be considered in that zone as trunk lines or channels connecting the residential district with the business district, and not built primarily to serve the intermediate district, consequently these form the main and terminal sections of the system, and may, therefore, be paid for by general bond issue.

The more or less radial extensions running beyond the four-mile circle and into land which is largely undeveloped, may properly be considered part of the cost of real estate development, and the financing arranged for before the construction actually takes place, upon the basis that the property benefited by their construction and operation should assume the resulting burden.

The territory which has already been developed, such as now lies within the one- and four-mile circles, is very slow to change and undergo further improvement. The tax records and statistics show that very little change has taken place in this district in recent years.

While some advantages may accrue to this intermediate portion of the city the great financial advantages accrue to what are now undeveloped suburban districts.

This plan of district assessment for improvements is now per-



mitted under New York legislation, and the Utica Avenue Elevated Line in Brooklyn is being built by local assessment of the property benefited.

To show that property owners in Philadelphia realize the advantages and are willing to co-operate, a prominent resident inquired recently whether the city would favor some of the extensions beyond what are herein suggested for immediate construction, provided the benefited sections would assume the burden of the interest charges locally.

Under Pennsylvania laws now existing this cannot be accomplished unless it be with the voluntary consent of the affected properties.

As showing the justice of the position herein outlined, let us discuss the extension authorized by Councils of the Frankford Elevated Line from Bridge Street to Rhawn Street.

This would provide for an extension of about three miles, and if extended as an elevated road along Frankford Avenue, would probably cost from \$1,500,000 to \$1,800,000. If constructed as a surface high-speed line on private right-of-way without grade crossings (the preferable plan), it would probably cost \$600,000 or \$700,000.

This extension would benefit all the property lying between the Pennsylvania Railroad on the east and the Northeast Boulevard on the west, comprising 2000 acres or more.

Assuming that the line is to be constructed as a surface high-speed line on private right-of-way at a cost of \$700,000 this construction cost would amount to only \$350 per acre if assessed equally upon the zone directly benefited. If bonds be issued by that district for the cost of the construction, the carrying charges would probably run not more than \$18 to \$20 per acre per year. On land to be developed, this is a burden too small to be considered, as it would only represent \$1.00 or \$2.00 per lot per year during the life of the bonds in the territory when developed. It may be claimed that such a plan will place too heavy a burden upon suburban land. If this be true, then evidently the development is premature and the extension not needed until it will bear the cost of its development,

The main advantage of the principle of assessing locally the cost of developing such suburban property is that it acts as an automatic check to the demand for unwarranted extensions, which clamor now has underlying it as a large factor the desire to get private advantage at the city's expense. Under this plan the land owners, who are now most interested in such extensions, will not clamor for it to be made until they are willing to bear themselves part of the burden which the city would otherwise assume in its construction and operation.

From Rhawn Street northeast to the City Line is a very considerable area of the city which might with equal justice clamor for improved service at the city's expense, but as the time of





travel increases with each addition to the extended lines, the outlying land becomes less and less desirable for residential development of the type popular in Philadelphia.

#### Alternate Method of Financing Branches and Extensions of the Trunk Portion of the System

In case it should be found undesirable or inexpedient for any reason, legal or otherwise, to finance the cost of extensions by means of special bond issues assessed locally on the property benefited to meet the carrying charges, I would make the suggestion that an alternate method of pacing the burden of these extensions on the territory and people benefited may be found in a proper adjustment of the rate of fare of the rapid transit lines in such sections of the city, this rate of fare being periodically adjusted so that it would grow less as the section builds up and becomes more thickly populated and the number of riders increases per year, it being placed at a figure at the beginning which will not be prohibitory.

This alternate method has the same advantage as local assessment of the property--acting as an automatic check on unwarranted demands for extensions and thus protects the city treasury.

The additional fare required on each extension could be approximately determined in advance, and while it would be somewhat troublesome to work out the practical difficulties of a two-zone system with transfers and different fares in the two zones, I believe it is not impossible to accomplish such a result if deemed desirable.

#### SUGGESTED IMPROVEMENTS IN THE PLANS FOR RAPID TRANSIT DEVELOPMENT

##### Suggested Improvements in the Construction Program of the Taylor Plan

Briefly, it may be here stated that there is no intention to suggest changes in the location or extent of the main radial rapid transit lines recommended in the "Taylor Plans."

The change contemplated is not in the main routes themselves --the improvements suggested herein relate chiefly to what I consider an unwise and unbusinesslike proposition to build these lines all at once, and to carry them into suburban districts now very thinly populated--into sections which should for several years, at least be served by surface lines.

I strongly favor the breaking up of the construction program into a series of steps with, as yet undetermined, intervals of time between the steps, so that the construction program will be extended over a period of years and the city and the operating company will be able to digest and assimilate the results of each step before another is added.

In outline the suggested construction program consists of:



First. - A progressive step method of construction whereby the Frankford Elevated between Arch Street and Bridge Street, and the Broad Street Subway between Spruce Street and Erie Avenue, will be constructed first, leaving the extension of the former to Rhawn Street, and the extensions of the latter to League Island, Olney Avenue, Germantown and the Boulevard (as provided by ordinance of Councils and authorized by the people in the \$6,000,000 loan) until a later date, at present indeterminate.

Second. - A change in the lines of subway in the business district whereby the delivery area will be more directly reached, the stations more advantageously placed and the cost of construction lessened.

No change is now contemplated between Ridge and Erie Avenues, but it is proposed that on the south two of the four tracks be diverted at this point to pass by way of Ridge Avenue, Eighth Street and Walnut Street to near Sixteenth Street, leaving only two tracks to continue wouthward in Broad Street. Also, it is proposed that the future Parkway Subway to the Northwest be designed to turn down Sixteenth Street and into Walnut Street, thus providing for the ultimate routing of some of the North Broad Street trains through to Roxborough by way of Eighth and Walnut Streets, while the remainder will be routed through to League Island, and the Southwestern Line through the Fortieth Ward. This change in the Parkway Line does away with the need for four tracks south of Filbert Street, and with the need for a junction station under City Hall. Therefore, it is proposed to change the line of the two Broad Street tracks between Arch Street and South Penn Square so as to permit the placing of the City Hall Station at Filbert Street, where it can be brought nearer to the surface of the street and where it will cause less congestion of traffic and will cost far less to construct. (See Map No. 6)

#### Suggested Construction of Comprehensive System in Successive Steps

##### Construction Step No. 1

Complete the Frankford Elevated to a point at or near Bridge Street on the northern end, and build the section from Callowhill Street south, connecting with the existing Market Street Line of the Philadelphia Rapid Transit Company, permitting the Frankford Line to be through-routed with the present Market Street Line.

- Although the present ordinance, under which the Frankford Line is being constructed, authorizes the building of the road north of Bridge Street as far as Rhawn Street, I do not consider it desirable that it be built north of Bridge Street at the present time. Even if it be legally decided that it must be built, that will not change the economic fact that it is not now warranted.

The territory lying north and northeast of Bridge Street should, for a number of years, be served and developed by trolley sur-





face feeders, which in this district, for several years at least, should be able to run at a schedule speed of at least 12 miles per hour. This speed is now maintained by trolley lines connecting at this point.

Under these conditions the city is not warranted in spending a large amount of money for the elevated construction as the maximum time saving to passengers living at Rhawn Street cannot exceed three minutes. This difference is too small to warrant the use at present of anything more expensive than high-speed surface trolley car lines on private right-of-way. Furthermore, Philadelphia should not, like New York, make the serious mistake of building high-speed elevated lines into relatively remote suburbs and ignoring the capabilities of surface lines as transportation feeders.

There is, furthermore, this point for consideration: Bridge Street on Frankford Avenue is now the present limit of the 5-cent fare zone from the center of the city, and any extension beyond this should be seriously considered in view of its evident effect on the operating lease of the city's system. An independent company is now operating the surface trolley line north of Bridge Street along Frankford Road to City Line, connecting with lines operating into Bristol and Trenton, and legal complications might ensue, together with opposition from the Public Service Commission if the city entered this territory as a competitor.

#### Construction Step No. 2

Build the North Broad Street Subway from a point near Erie Avenue on the north to Ridge Avenue on the south as a four-track construction, dividing at Ridge Avenue into two two-track subways--one pair of tracks extending south along Broad Street to a point near Spruce Street, the other pair of tracks turning east along Ridge Avenue to Eighth Street, south on Eighth Street to Walnut Street and west on Walnut Street to a point near Sixteenth Street. On the lower end both lines would terminate in stub-terminals until the connections for through-routing are established, as stub-terminals will provide sufficient terminal facilities for 30 trains per hour. This would form the first section of the line and is in conformity with principles Nos. 1, 2, 4, 5 and 7 enunciated on pages 149 and 150 of this report.

#### Importance of Erie Avenue as Temporary Northern Terminal of Broad Street Lines

At no other point along the Broad Street line is it possible as it is at Erie Avenue to focus readily a large number of surface trolley lines which by transfer can utilize the high-speed lines to bring the passengers which they may have collected into the center of the city. This utilizes the surface lines efficiently in the territory north of Erie Avenue and reduces the operator's investment and the car mileage by about 25 per cent. as compared



with operating the two extensions above Erie Avenue. As this reduces both the operating expenses and interest charge coming ahead of the city's share of the earnings it is greatly to the city's advantage, as is evident from the statement of operating results attached. (See Statement 5).

It will be noted that this will require the opening of Ridge Avenue through the block at Eighth and Ninth Streets in accordance with the plans for the "Traffic Circuit," which have formerly been proposed.

#### Walnut Street Line.

Walnut Street is now suggested in place of Locust Street for the location of the south line of the subway, chiefly because it is planned that this line will eventually be extended to Sixteenth Street, and north on Sixteenth Street to the Parkway, and then in a northwest direction to serve Roxborough, Germantown, etc. Furthermore, the delivery on Walnut Street will be more desirable than on Locust Street, and to that extent will reduce objectionable transferring. For this side of the route Chestnut Street might be more desirable, as it will involve building 1000 feet less of subway and provide better delivery for passengers, thereby reducing transferring; but Locust Street can be used if deemed absolutely necessary for other than transit reasons. Walnut Street is suggested as a compromise, believing that Chestnut Street should be left open for occupancy of future lines.

Locust Street was originally recommended for the south leg of the "Delivery Loop," because it was then expected that it might promptly be widened to 134 feet, and also because it is impossible to place a station at Broad and Chestnut Streets unless this side of the loop be taken south to Locust Street.

As there is no immediate prospect of widening Locust Street, and as the curves and switches which formerly controlled that location are eliminated in this plan, there is no engineering reason why either Chestnut Street or Walnut Street may not be used for this portion of the Broad Street-Northwestern Route.

As the number of streets in the business district available for use by rapid transit lines is very limited, I feel that it is very important to use such streets efficiently; that is, pass trains through the business district only once per trip and use only one street as the terminal of two radial or trunk lines. This, if for no other reason, should force the adoption of through-routing operation.

#### Temporary Stub-End Terminals

The method of operation favored in this report would utilize stub-end terminals at the northern, southern and western ends of these lines as these stopping points are considered temporary, to be used only until extensions are built on the northern end and additional lines are brought in and connected on the lower





ends, so that through-routing operation can be instituted.

#### Successive Steps and Extensions in the Future

Step No. 2, which constitutes the trunk or terminal section of the Broad Street Subway, should, at later dates as yet undetermined and to be fixed by the development and traffic necessities of the city, be utilized to its fullest extent by building rapid transit lines and extensions to connect therewith, (a) to Roxborough and Germantown, (b) Southwest Philadelphia, (c) South Philadelphia, (d) Logan, Olney and points north of Erie Avenue; these lines to be built at such times and in such sequence as traffic may warrant.

A comprehensive plan of through-routing will become effective only when such lines are built.

The complete system is shown in diagrammatic form on Diagram No. 5.

#### Time of Construction and Operation

The time needed for the construction of Step No. 1 should not vary to any extent from that outlined in the Transit Commissioner's Report of 1913, except insofar as it may be necessary to delay the final completion of the lines until it is finally determined whether they shall be leased to the Philadelphia Rapid Transit Company or to an independent operator. To complete Step No. 1 (the Frankford Elevated) will probably require about one year after the execution of an operating contract.

The time necessary to complete Step No. 2 will be practically the three years allowed under the former program, inasmuch as the time necessary to complete the entire line should be the time necessary to complete the most difficult or slowest section of the line.

If the money be available and the contracts awarded during the fall of 1916, the lines should be in operation by the fall of 1919.

#### Comparison of Cost of Construction--Amount of Loan Suggested

As previously stated in 1915 report a loan of \$50,000,000 was requested to carry out the construction program as outlined. The estimates used have been the same in each case as far as possible based on the average prices prevailing in the last two or three years for contract work of similar character in New York and other cities. In view of the rapid rise in the cost of steel, cement and labor, which is now taking place, beginning with the latter part of 1915, it may be doubted whether the work can be contracted now on the basis of these estimated prices. In order to provide against this or any other contingency, I have deemed it wise to ask that the authorization by the people at the present time for the completion of construction of Steps Nos.



1 and 2, be made \$35,000,000, although this figure should be considerably in excess of the amount absolutely required, now estimated at about \$25,600,000. Bonds should be issued under this authorization only as needed, hence this authorization should in no wise burden the city with unnecessary interest charges or with funds lying idle in the city treasury, and any balance not used on Steps Nos. 1 and 2 will be available for future steps of the construction program.

#### Why is Construction in Progressive Steps Advised?

For reasons that are largely financial, I advise that the city's program for improved transit facilities be made to agree with the city's actual needs for such facilities.

The comprehensive system called for by the latest "Taylor Plans" if constructed at the present time will doubtless call for an outlay within the next three years in excess of \$63,000,000; \$6,000,000 has been appropriated for this work, leaving approximately \$57,000,000 necessary to complete this system.

A loan of \$50,000,000 was requested in December, and according to a statement of the Controller, \$69,000,000 of the city's borrowing capacity is available and may be applied to this purpose.

To many people it will probably seem strange, that with this large amount available, there should be recommended at this time the expenditure of less than \$30,000,000, and the construction of but two initial steps of what is intended to eventually be a complete rapid transit system.

The reason for keeping the initial expenditure within a conservative limit is that any expenditure in excess of this amount, particularly at this time of abnormally high prices, becomes an unwarranted burden.

A table is appended to this report giving a comparison of the amounts of the city's direct obligation on the different plans. (See Statement 5.)

In the face of such figures, any proposal for an initial expenditure greater than stated cannot be justified.

Full consideration has been given to the incidental advantages resulting from other rapid transit, lines, and from extensions beyond the points now advocated, and the construction contemplated in Steps Nos. 1 and 2 is the result of careful study and consideration of any advantages which the city might derive from a more extensive initial construction.

The final "Taylor Plans" construction program represents a construction outlay of over \$60,000,000 and a deficit in fixed charges will accrue by 1940 in excess of \$30,000,000, making the total cost to the city over \$90,000,000.

The progressive method of making provision for future needs





is used in practically every line of business.

The Wanamaker Store and Curtis Building are conspicuous local examples. These enterprises have developed by progressive steps extending over several decades, each having been built to meet the needs of an established business. Had these magnificent buildings been erected thirty years ago, they would have been so far in advance of the business requirements that financial disaster surely must have resulted.

If it is sound business to so conduct a private enterprise, the same argument should carry weight in a city experiment such as contemplated.

The mere fact that the city finds it absolutely necessary to undertake this transportation enterprise on account of its not being financially attractive to private capital warrants the position herein assumed that this experiment, if financed on the city's credit, should be made gradually and with caution.

The mere fact that the city can draw on the taxpayers for the deficit in its interest and sinking fund obligations, while a private company has not that resource, should be no valid argument for a reckless expenditure of the peoples money.

Nearly every one admits the soundness of the principles underlying the progressive or step program herein proposed. It is only when it is proposed to apply it to his own district or locality that opposition is aroused.

This is a psychological and political phase of the problem which it is useless to discuss here.

Every man should allow his conscience to decide his position when his personal interests and rights conflict with those of the city.

In this connection it may be well to call attention to a matter which has been apparently overlooked by the public; namely, that the "Taylor Plans" have never been officially approved as a whole by Councils and are being constructed on the progressive or step program, so that the program herein outlined is practically now in effect.

About a year ago \$6,000,000 was authorized and appropriated for what was popularly understood to be a start upon the Frankford Line and the Broad Street Lines.

This initial appropriation of \$6,000,000 may be considered as the city's endorsement of a limited plan of rapid transit consisting of two routes only-- and not the entire "Taylor Program." As this sum was only about 20 per cent. of the sum estimated as the construction cost of these routes, it is referred to in this report as Step No. 1 of the construction program.

This sum of \$6,000,000 was borrowed at a 6 per cent. rate for



interest and sinking fund, thus drawing \$360,000 annually on the tax revenues of the city.

It was explained at that time that it was not desirable to borrow more than the sum of \$6,000,000, which it was estimated would finance the construction contracts until cheaper funds were available, these cheaper funds being money borrowed under the new legislation, which allows the issuance of 50-year bonds with graduated sinking fund and the capitalization of interest and sinking fund during construction and first year of operation.

The only difference between the "Taylor Plan" and what is here advocated is that the "Taylor Plan" called for about \$50,000,000 to finish the comprehensive system in a second step, whereas this plan contemplates an expenditure of about \$25,000,000 in the second step, leaving the balance to be carried forward when conditions warrant.

#### Effect of Gradual Construction By Steps on the Lessee of City's System

The question will be raised whether the method of construction herein outlined is not to the financial advantage of the Philadelphia Rapid Transit Company, the assumed lessee of this system.

This question cannot be answered either affirmatively or negatively without full knowledge of the terms of the lease. It is the lease which will determine the advantages flowing to the lessee--not the construction program. This is further discussed elsewhere.

In a joint and unified method of operation of the surface and rapid transit lines such as is contemplated in this report and in all the former reports of this department, certain interests of the city and the Philadelphia Rapid Transit Company must be considered as joint.

The company and the city under the terms of the "Contract of 1907" and the assumed terms of this lease are virtually partners in a city transportation enterprise, and it is not logical to assume that an advantage can accrue to one partner without a corresponding advantage to the other, according to such terms as the lease shall provide.

It has been assumed in all discussions that the Philadelphia Rapid Transit Company will have prior claims upon the joint earnings of the lines to the extent of at least receiving its operating expenses, taxes and the interest on its investment in the new lines and their equipment, and such amount as may be agreed upon as a recompense for diverted business in merging its system with the rapid transit lines. Such claims should also include any agreed financial damage resulting from the establishment of a universal transfer, or any fare changes which may be authorized in the "1907 Contract."

The city will receive its share of the profits only after the





allowances to the company, as agreed upon, are deducted.

This assumption is a fundamental feature in the form of lease proposed under the "Taylor Plans."

It will be seen how highly important it is to operate the joint or merged system as efficiently as possible, which means utilizing the existing system as far as it can be incorporated into the joint operation, and it should be self-evident that the city's assumed liability should be kept as small as possible.

#### Change of City Hall Station

The alignment of the two tracks continuing down Broad Street to Spruce Street should, in my judgment, be modified in the neighborhood of City Hall so as to remove the station from underneath City Hall and place the same on a diagonal line running under the proposed Plaza from Broad Street Station to a point at or near Arch and Broad Streets, thus securing a greater distance between the City Hall Station and the Chestnut-Walnut Street Station, which for the present will form the southern and terminal station on this line. This station, and also the Walnut Street station, will become two-track stations instead of four-track stations as formerly designed, and recommended by virtue of the Parkway Line being eventually through-routed to North Broad Street via Sixteenth Street and Walnut Street. This will greatly simplify both the construction and operation and will avoid all complicated switching arrangements needed for the extreme flexibility of operation which the former "loop" provided in the matter of right-hand and left-hand train operation around the "loop" in addition to the provision for through-routing of the North and South Broad Street Lines.

The location of the City Hall Station under the Plaza just north of the City Hall, and diagonally between Broad Street Station of the Pennsylvania Railroad and Broad and Arch Streets, will permit the utilizing of Arch Street surface cars for transfers east and west with much greater facility than the present recommended location and will relieve the pressure and congestion which will result to the Market Street Subway.

The location of the station beneath the City Hall was brought about as a result of limitations due to track arrangement and three fundamental assumptions:

1. That the Philadelphia Rapid Transit Company will either presently or eventually agree to construct at their expense a two-track subway east and west under City Hall, thereby operating their trains on a tangent as a substitute for their present express lines circling the City Hall.

2. That this being done, the platform of the Fifteenth Street Station will be extended eastward sufficiently to permit of making this station the main transfer point between the north-and-south and east-and-west lines. These items have been estimated to cost the company at least \$500,000.



3. That it is essential to connect the Parkway Line into this station in order to include it in the transferring arrangements with the Broad Street Lines and to give it proper terminal.

In my opinion, it will be a fundamental error to make this the main transfer point between the east-and-west and north-and-south lines, since at this point both lines will carry their maximum load, and transferring between lines should be done at point of less congestion and where better facilities can be arranged to provide for it.

Under these suggested modifications the bulk of the transferring will occur at two points--Eighth and Market Streets and Broad and Walnut Streets. At both these points facilities can be provided for taking care of such transferring as may be desirable.

A line should be, as far as possible, located and operated so that it will take the people to the principal points in the business district as directly as possible without the use of transfers, and I believe that a study of the plans herewith submitted will make it evident that transferring will be no more, and somewhat less, on this plan than on the plans formerly proposed.

This matter of transfers between rapid transit lines in a unified system is a vital one, and may be fairly called the controlling one in Philadelphia, and it is only after a careful study and observation of this situation for a number of years that I feel warranted in suggesting a change of this character.

My objections to the present location of line and station are:

1. Its extremely high cost.
2. It is not the proper place to make a general transfer between rapid transit lines.
3. The station is too close to the Chestnut Street Station on the south.
4. Liability of damage to the City Hall.
5. There exists no agreement with the Philadelphia Rapid Transit Company in regard to building the Market Street line through the City Hall and extending the Fifteenth Street Station platforms as contemplated.
6. Excessive depth required.
7. All entrances and exits of the stations are either adjacent to, or inside of the City Hall, necessitating that all passengers cross the inclosing streets, congested with traffic of all kinds. This is one of the most congested points in the city and this station would increase it by 300 per cent. or more.

The reasons in favor of the proposed location north of City Hall are:





1. Much lower cost of construction--fully \$500,000 less than the present plan.

2. Better distribution of stations on the line by increasing the distance between the Race Street, City Hall and Chestnut-Malnut Street Stations. (See Map No. 7.)

3. No great risk of damage to the City Hall, at least much less than by the other plan.

4. Platforms much nearer the street surface--about 7 feet.

5. Much better light and air than if placed underneath a building. Station will not be obstructed with heavy wall and underpinning columns.

6. Allows the utilization of the Arch Street surface line to relieve the Market Street Line.

7. Allows for such amount of transferring as may be deemed necessary to provide at this station.

8. Permits of sub-surface connections under streets, making less congestion on surface than otherwise.

#### Change of Existing Contract for City Hall Station

The work so far done by the contractor for the City Hall Station consists largely of preparatory and preliminary work, the sinking of pumps for drainage and the excavation of the material down to approximately the level of the City Hall foundations.

No masonry or permanent work on the station has been placed, and the excavated material can be readily replaced out of the new work and the City Hall restored to its former conditions without great delay or expense.

Up to date \$79,775.47 has been paid the contractor on account of this contract, and the final figures as to the total additional amount required in making the change cannot be computed for some little time.

Under the contract the department appears to have full authority to make such changes as are recommended in this report and to adjust the contract on a fair and equitable basis, such adjustment being, of course, subject to the approval of the Mayor and the City Solicitor.

If the approval of the alteration be obtained promptly, work can start vigorously and this contract completed ahead of the remaining section of the Broad Street Line, so that any delay resulting from this change should not affect the date of opening of the Broad Street Line.

#### FINANCIAL CONSEQUENCES OF OPERATING DEFICITS

How are These Deficits to be Met?



The comprehensive system, if built and operated as assumed in the 1915 Annual Report, will probably produce a drain upon the city's treasury of upwards of \$30,000,000 in twenty-five years.

This deficit of \$30,000,000 in fixed charges in twenty-five years averaging over \$1,000,000 per year, can be met in only two ways. As the city has issued the construction bonds and is therefore liable for the interest and sinking fund, any deficit will probably appear eventually as an additional tax on real estate, or as an increase in car fares. At the beginning this tax may represent an increase of 15 cents per \$100 of assessed valuation, and will probably average 10 cents for a period of twenty-five years.

In my opinion, the deficits as now estimated are liable to be larger rather than smaller than shown.

The annual deficit resulting from the operation of steps Nos. 1 and 2 is estimated to disappear in about ten years, and the accumulation to amount to a total of approximately \$4,000,000, or a total cost to the city by the year 1930 of less than \$36,000,000 as compared with \$81,000,000 for the entire plan if constructed as an initial system, and by the year 1940 the city's accumulated deficits will have decreased because of annual profits so that up to that time the city's total investment will be less than \$32,000,000 as compared with \$90,000,000 for the entire plan if constructed initially. As the maximum estimated annual deficit under the suggested plan reaches only \$815,000 and averages less than one-half that on the "Taylor Plan" the resulting increase of the tax rate should not exceed 5 cents per \$100 for a period of ten years.

The deficits for the entire plan constructed as an initial system under Plan No. 16 of the 1915 annual report of this department are based on the assumption that the Camden Tube be built and operated by the Philadelphia Rapid Transit Company. The entire net earnings of the Camden Tube are applied as a credit against any preferential payment to the Philadelphia Rapid Transit Company on account of net income diverted from the surface system by the new high-speed system. If this tube be not built, or the net earnings not so applied, the deficits to the City will be considerably larger.

It is open to question how far the city is justified in using money raised from general taxation to pay deficits resulting from the operation of a city-owned rapid transit system.

In my judgment it should not be done except as a last resort, and then only to a limited extent.

The alternative is a higher fare for the improved service.

Who Should Carry the Burden of Deficits Resulting  
From a Unified System?

A tax on real estate is the most common method of raising municipal revenue, as real estate is the most tangible property upon which to levy taxes, and its furthermore supposed to bear more





equitably upon the citizens than other forms of taxation. may be good grounds for questioning the justice and expediency of levying such a tax in order to make up deficits in the treasury resulting from the city's participation in public utilities like passenger railways.

The basis for proposing such a tax in the present case rests upon the following assumptions:

- (a) That in the real estate tax the owner will carry the burden -not the tenant.
- (b) That a 5-cent fare is all that it is expedient to charge the car rider for a single trip on a unified transportation system.
- (c) That any increase of car fare must be made uniform over the unified system.
- (d) That a uniform increase in fare would directly affect the entire population of the city while an increase in real estate taxes would directly affect only about one-quarter of the inhabitants of the city.
- (e) That an indirect tax on real estate to meet the deficit is preferable to a direct personal tax in the shape of increased fare.

Considering these assumptions in the order given, it may be stated that the assumption that the owner of the real estate pays the taxes will be recognized as a fallacy when it is understood that every piece of property is occupied by a tenant. The fact that the owner may be the tenant does not alter the fact that he is a tenant nevertheless, and his rent consists of the sum of three items, (a) interest on the value of his property, (b) taxes, and (c) repairs and maintenance. Any increase in taxes on the property, while he pays it as an owner, he also pays it as a tenant. In a rented property the increase of taxes is added to the rent wherever possible. When, owing to economic conditions, this is not possible it is reflected in a fall in the value of real estate affected. Since with this explanation all residents of the city are tenants, it is readily seen that it is largely a matter of whether the burden be distributed as an indirect tax over the real estate of the city or by a direct personal tax in the shape of adjusted carfare.

The assumption that a 5-cent fare is all that it is expedient to charge for a single journey on the unified system would give the impression that the average fare on the unified system is 5 cents only. As a matter of fact the average fare per journey has been 5.176 cents, and for the year 1911, 5.166 cents, this increase above 5 cents being occasioned by the additional revenue from the 8-cent exchange tickets. I have observed the attitude of the public in the last two years on this question of fares and believe that the opposition of the public to the exchange tickets, and the demand for uniform 5-cent fare, result more from the feeling of injustice connected with the situation than from the money which is involved. Statistics show that only about 6 per cent.



of the riders use these exchange tickets and the irritation which they creat is out of all proportion to the number of people affected. It is the injustice of the situation by which free transfers are available at certain points while at other points, equally or more deserving, 3 cents additional is charged. It is this unjust discrimination which creates the irritation.

RAPID TRANSIT DEVELOPMENT IN PHILADELPHIA  
TRANSFERS.

(Proposals of Philadelphia Rapid Transit Company, March 25, 1914.)

Philadelphia, March 25, 1914.

To the Special Committee on Rapid Transit of  
Select and Common Councils of the City of Philadelphia

Gentlemen:

The Stoebury management in June 1911, was prevailed upon to undertake, as a civic duty, the rehabilitation of the Rapid Transit System.

The results accomplished during the first half of the 5-year period are far in advance of the commitments then made. Were it now possible for this management to continue undisturbed upon the original plan as set forth at its incoming, it can safely be affirmed that before the end of the 5-year period the public would be in full enjoyment of a modern and efficient surface transportation system, which would be a credit both to the city and to its owners and productive of return upon the \$30,000,000 of capital actually paid in.

The city's plans for rapid transit development have produced a new situation, not of the company's seeking, under which the Philadelphia Rapid Transit Company is called upon to assume additional financial and operating burdens.

In response thereto, the company now submits certain propositions which are the result of conferences with the sub-committee on rapid transit negotiations and represent the utmost the company can safely undertake.

The Stoebury management is neither desirous nor willing to proceed with these undertakings unless they are recognized as being fair to the city and meet with general public approval, in which event, it will put forth its best endeavors to make them effective, viz.:

A. - An elevated railroad to Frankford to be built and equipped by Rapid Transit Company and operated as an extension to the Market Street Elevated service.

B. - A tube under the Delaware River to Camden to be built by interests holding that franchise, this line to be leased to the Rapid Transit System and operated as an extension to the Market Street Elevated service, but with an additional fare of 3 cents therefor.





C. - Additional subway-elevated lines to be built and equipped by the city and operated by Rapid Transit Company with a comprehensive system of free transfers between all subway-elevated lines and surface feeders as hereinafter outlined. The establishment of free transfers between subway-elevated and surface lines is without precedent in the rapid transit development accomplished in any other city and is possible only through unified operation by Rapid Transit Company and the abolishing of the 30-cent exchange tickets under these mutual undertakings with the city.

The suggested terms of operation of new subway-elevated lines by Rapid Transit Company are set forth in detail in Supplement No. 1 accompanying this letter.

Assuming that the necessary franchises, contracts and consents be authorized by City Councils and approved by the Public Service Commission of the Commonwealth of Pennsylvania, these undertakings are necessarily made conditional upon the following viz:

- 1 - That such satisfactory arrangements be made with the Union Traction Company of Philadelphia as will justify and secure that company's financial co-operation in the carrying out of these general plans.
- 2 - That an agreement be secured covering the construction of a tube under the Delaware River to Camden by the interests holding that franchise, and the leasing thereof to the Rapid Transit System.
- 3 - That the loss in the net revenue of the company, due to the elimination of the 3-cent exchange tickets, be overcome through concessions by the city with respect to certain payments which the company is now obligated to make.

While no attempt has ever been made in any other city to provide a general system of free transfers between surface lines and subway-elevated lines, this management is willing to undertake to establish such a comprehensive system of transfers as will make available, to practically the entire population of the city, the combined use of the surface feeders and the high-speed subway-elevated lines upon the payment of a flat 5-cent fare.

The suggestion contained in the report of the Transit Commissioner was that transfers between surface lines and subway-elevated lines should not be given generally closer than about three miles from the central business district.

This management believes, however, that if the proposed vast amounts are expended for city-built rapid transit lines, the entire city insofar as is possible, should share in the benefits to follow therefrom and in its opinion, this cannot be accomplished if the transfer privilege between the surface feeders and the high-speed lines be confined to the sections outside the 3-mile limit, inasmuch as these outlying sections include only about one-third of the entire population of the city.



Without a comprehensive system of free transfers between the proposed subway-elevated lines and surface lines, the benefits to be derived from the large expenditure for subway-elevated lines would be confined to the comparatively limited number of persons living within convenient walking distance of subway-elevated stations.

It is directly to the interest of every section of the city that a universal system of free transfers be established both between intersecting surface lines and between subway-elevated and surface feeders lines.

Because of the congested condition of streets, it is somewhat to somewhat restrict free transfers in the central business district, until additional facilities are provided by the building of the proposed Subway Delivery Loop. This matter can, however, well be left to the determination of City Councils with the approval of the Public Service Commission.

Before such a comprehensive system of transfers can be considered or, in fact, before any enlarged system of transfers can be made effective, some method must be determined whereby the 3-cent exchange tickets can be eliminated.

A plan for meeting this situation is set forth in detail in Supplement No. 2 accompanying this letter.

In conclusion, this management believes that the mutual undertakings of city and company herein suggested will open the way for a complete rapid transit development on terms more favorable to the citizens than have been secured in any other municipality.

Respectfully submitted,

(Signed) T. L. Mitten,  
Chairman, Executive Committee.

Approved:

(Signed) E. T. Stotesbury,  
Chairman, Board of Directors.

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#### SUPPLEMENT No. 1

#### Terms of Operation

The Frankford Elevated extension to be operated at the outset as a part of the Market Street Elevated service, with free transfers to and from surface feeders.

The Camden tube to be operated as an extension of the Market Street Elevated service, providing direct and rapid transportation for a 3-cent fare between Philadelphia, at or near Second Street, and a point in Camden, at or near the terminal of the Pennsylvania lines.

Upon securing the necessary legislation permitting the issuance of 50-year as against 30-year bonds, the city will be in a better position to





undertake the construction and equipment of a Broad Street Subway with Delivery Loop, a Chestnut Street Subway with elevated extension to Darby, an elevated or subway extension to the northwest and such other subway or elevated lines as Councils may determine.

Rapid Transit Company to supply power for and operate all city-built lines, at cost, for the benefit of the city, with free transfers between its own system and city-built lines; each system to retain the fares collected by it and to honor the transfers issued by the other.

In determining the cost of operation as between the city-built lines and the company's lines such expenses of operation as permit of exact distribution to be charged direct to each system; expenses of supervision and administration, and such other charges as are general to the combined system, to be distributed in proportion to the gross earnings of each system; power to be supplied to city-built lines at the low cost made possible by the joint use of Rapid Transit Company's generating and distributing system; and whenever property of either system is used by the other, a rental of 6 per cent. per annum on the cost of the property so used to be charged, and if any property is used jointly, this charge to be apportioned according to the extent of its use by each system.

It was originally suggested that the Rapid Transit Company undertake the construction of an elevated line to Darby as an extension of the Market Street Elevated in West Philadelphia. It has since been determined that the capacity of the present Market Street Subway would be too soon reached to justify adding the number of trains required by the Darby line. The operation of the Frankford Elevated and the Camden Tube, serving only to supply a load east of City Hall to the otherwise empty westbound cars in the morning, and in the evening to the empty eastbound cars.

Whenever the city connects the Chestnut Street-Darby line with the Frankford Elevated line at or near Front and Market Streets, Rapid Transit Company to operate these lines at cost for the benefit of the city, thereafter contributing to the carrying charges of the Chestnut Street-Darby line the surplus earnings of the Frankford line over and above a return of 6 per cent. per annum cumulative on the company's investment therein.

When the Camden tube is opened, service on the elevated structure in Delaware Avenue, from Arch to South Streets can be continued by an extension of the Market Street surface service by means of inclined tracks connecting the present Market Street loop with the elevated structure.

The construction of the Frankford elevated; the leasing of the Camden tube; the operation of city-built lines at cost; the giving of universal transfers; and the financing of new surface feeders and other construction requirements, calling for additional annual capital expenditures of at least \$2,000,000, are separately and collectively dependent upon maintaining the financial integrity of the Rapid Transit Company.

The establishment of a comprehensive system of transfers throughout the city, especially within the 3-mile limit, while serving to very greatly benefit the public, will necessarily divert some considerable portion of the Rapid Transit Company's normal earnings to the city-built



lines. The company must, therefore, be assured against any reduction in its net earnings by a provision that the amount of its net earnings prior to the operation of city-built lines, plus interest on subsequent capital expenditures, shall be a first lien on the net earnings of the combined system.

The provision for assuring the operating company net earnings equal to those obtaining prior to the opening of city-built lines, plus interest on subsequent capital expenditures, has been recognized wherever such undertakings between city and company have been made effective. The contracts, under which subway-elevated development is now being carried on in the city of New York, contain such provisions and bear the approval of the Public Service Commission of the State of New York, First District.

It is estimated that this condition, if it arises at all, will not continue for more than from one to two years. Whenever the net earnings of the city-built lines are sufficient to meet the city's payments for interest and sinking fund upon the bonds issued to cover the cost of construction and equipment, the surplus to be divided equally between the city and the company.

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## SUPPLEMENT No. 2

### Free Transfers

In New York, Brooklyn and Chicago there is a general use of free transfers between the surface lines; but there is no such transfer privilege between surface lines and subway-elevated lines, and passengers using both lines pay two full fares.

In Philadelphia the charge of "eight cents for a single change from one car to another on certain intersecting lines" is one of the rates of fare of the Rapid Transit Company protected by the contract of July 1, 1907. This language is quoted from the opinion of the Supreme Court sustaining the right to make such charge.

The Stotesbury management had no part in the fixing of these rates of fare, but at the time of its taking charge of the property in 1911, it accepted the then existing condition which produced a certain average rate of fare, with which, by careful direction it undertook the task of giving adequate street car service to the public.

Aside from the legal right to continue their rate of fare, an analysis of the receipts of the company shows conclusively that the Rapid Transit Company is absolutely dependent on this revenue. Any action which would deprive it of its present narrow surplus of earnings over expenses would render it impossible for this company to serve the public by prop-





erly discharging its present duties or to help in the greater financing necessary for the building of additional subway-elevated lines.

The sum produced by this additional 3-cent charge for exchange tickets during the last three fiscal years was as follows:

1911	1912	1913
<u>\$739,296</u>	<u>\$744,764</u>	<u>\$794,264</u>

and the same rate of increase (4 per cent.), gives the figures:

1914	1915	1916
<u>\$825,034</u>	<u>\$859,075</u>	<u>\$893,438</u>

The company, as hereinbefore stated, must be compensated for the loss of revenue incidental to the elimination of the 3-cent exchange tickets and various plans for overcoming this loss have been discussed.

The question of strip tickets, i. e., six-tickets-for-a-quarter, without transfer, was carefully considered by the sub-committee. While under this plan those passengers who could reach their destination by the use of a single line would enjoy a slight reduction in fare, the result to all passengers using more than one line to reach their destination would be an actual increase in the rate of fare.

A charge of one cent additional for a transfer ticket, would, it was estimated, about compensate for the loss of exchange ticket revenue. As this plan would result in increased fare to those passengers now using transfers, thereby serving to retard the growth of the outlying sections of the city, it was not thought to offer the best solution.

The following method of meeting the situation is the result of suggestions made by several members of the sub-committee, and the company is willing to proceed upon this plan, if it meets with public approval:

This suggestion is to meet the loss in exchange ticket revenue by concessions with respect to certain payments which the company is now obligated to make to the city either under the charters of the underlying companies or under the contract of July 1, 1907.

Three items of expense of Rapid Transit Company have been suggested where this principle could be successfully applied: (1) the annual payment in lieu of repaving streets, at present about \$500,000; (2) the annual payment to the city for tax on dividends of certain of the underlying companies, now approximating \$115,000,; and (3) the annual payment into the sinking fund under the contract of July 1, 1907, at present

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Note. - The sum produced by this additional 3-cent charge for exchange tickets during the last three fiscal years was as follows:

1914	1915	1916
<u>\$831,740</u>	<u>\$812,685</u>	<u>\$897,012</u>



\$120,000. The total of these items is now \$735,000. As the problem for the coming fiscal year, 1915, is to compensate for a loss of \$859,000, there would still remain a deficit of \$124,000, which the Transit Company would be obliged to overcome by economy in operation and by rerouting and combining certain lines to meet the new conditions arising from the enlargement of the transfer privilege.

The reduction in rates of fare contemplated under the foregoing proposition, and the release of certain obligations, would call for an amendment to the contract of July 1, 1907. The company would, in this event, resume payments into the sinking fund in 1924 upon a basis which, if the contract were extended for an additional period of seven years, would produce the sum of \$30,000,000, with which the city could purchase the capital stock of the Rapid Transit Company at the termination of the contract.





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REPORT OF CITY TRANSIT

SEPTEMBER, 1917

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The activities of the Department of City Transit for the year 1917 were directed into three main channels:

1st - The designing of the City's System.

2nd - Work upon the physical construction of the City's System.

3rd - Lease negotiations with the Philadelphia Rapid Transit Company and necessary enabling legislation in connection therewith.

In each branch substantial progress was made, but the year's achievements, due to the war and many local causes, were not as gratifying as had been expected.

The public, having authorized this huge undertaking in May of 1916, was naturally impatient to see the actual work of construction begin - in other words, "to see the dirt fly immediately." Many irritating delays are inseparable from public undertakings, particularly such as do not follow established precedents. Construction contracts could not be awarded immediately after the authorization of the work, because the method of operation of the City's System had not yet been determined. The method of Operation of the City's System had a most important bearing upon its Design and Construction.

One necessary precedent to beginning the physical construction of the City's High Speed System was the approval by the Public Service Commission of the proposed program of construction and the issue therefor of a certificate of public convenience by the Commission.

The Director in a report issued early in the year 1916 had recommended that an agreement for the operation of the City's System should be executed previous to committing the City to an extensive program of construction. The belief by the people was general, however, that an agreement must necessarily be reached between the City and the Philadelphia Rapid Transit Company, and that the latter would finally become the operator of the City's High Speed System. The developments of the year 1916 had tended to confirm this belief, inasmuch as the year closed with a bona fide proposal from the Philadelphia Rapid Transit Company covering a form of lease prepared by that Company upon a basis favorable to itself. That proposal was



received on December 20th and in the belief that it might be modified into an acceptable form of agreement, the City, in order to expedite its plans, immediately determined to ask for a certificate of public convenience, authorizing the construction of its system, based upon its operation by the the Philadelphia Rapid Transit Company and consequently filed its application with the Public Service Commission for such certificate on December 29th of that year, or about five months after the comprehensive system had been authorized by City Councils. No delay in the issue of this certificate was expected by the Department, as the Commission had already, on August 14th, 1915, issued a partial certificate covering the Frankford Line, between Callowhill and Dyre Streets, and a portion of the Broad Street Line beneath the City Hall, and had thereby certified its approval of the lines forming a substantial part of the larger and more comprehensive system authorized by the City in 1916.

Immediately following the defeat of the "Salve Bill," on June 27, 1917, the Mayor decided that the City must prepare for the operation of its system in competition with the Company's System, and to that end the Chestnut Street Subway was a necessity. The City, therefore, on June 30, 1917, filed its petition for an additional certificate covering that line.

After much discussion the certificate approving the entire system of City lines was finally issued by the Commission July 23, 1917, and in the meantime conditions had materially changed.

Councils in authorizing the construction of the City's System had not recognized the difference in the importance to the City of the various lines and had not provided for the priority in construction of any line or lines ahead of others. This omission placed the responsibility for scheduling the construction upon the Department, and it was found to be a physical impossibility, with the engineering force obtainable, to complete the plans for the entire system of authorized lines at one time, and it was equally impossible to place them all under contract at one time without a long delay in beginning construction. Councils in the original ordinance of 1915 had recognized that the Frankford and Broad Street Lines were the most important of the several lines to be built. As construction had already started on these two lines, it was generally agreed that for economic reasons the various lines authorized should be built and the plans therefore were prepared in the following order.

- (a) The Frankford Line - Connecting with the Philadelphia Rapid Transit Company at Front and Arch Streets.
- (b) The Delivery Loop.
- (c) The North Broad Street Line.
- (d) The Darby Line
- (e) The South Broad Street Line
- (f) The Parkway-Twenty-ninth Street Line.





## THE TENTATIVE SCHEDULE OF CONSTRUCTION

The Department in the latter part of the year 1916, prepared a tentative schedule of construction, which was published (Facing page 54) in the 1916 Report of the Department. The earlier schedule assumed no delays from any cause and embodied the limit of optimism. It assigned the following dates for the completion of the First Operating Section of each line:

Frankford Elevated Line - Front and Arch Streets to Bridge Street, July 1, 1918.

Broad Street Subway - Spruce Street to Erie Avenue, July 1, 1920.

Darby Elevated Line - Thirtieth and Market Streets to Sixty-seventh and Woodland Avenue, July 1, 1919.

Parkway-Roxborough Line - To Henry Avenue and Bowman Street, July 1, 1921

Byberry Surface Line - First Section, July 1, 1918.

The schedule of 1916 was based on the estimated ability of the Department to furnish plans for construction and the following assumptions:

- (a) That the certificates of public convenience to be issued by the Public Service Commission would be promptly granted.
- (b) That construction work could be pushed vigorously.
- (c) That the Philadelphia Rapid Transit Company would equip and operate the authorized lines.
- (d) That a contract covering such equipment and operation would become effective not later than July 1, 1917.
- (e) Energetic co-operation by the Company in equipment of the lines would be secured.

That construction schedule was intended to be so planned that all parts of an entire operating section of a line should be completed and in operation at approximately the same time, and thus reduce the interest charges to a minimum. Theoretically to accomplish this the more difficult parts of the section should be placed under contract first, as these should determine the time for completion of the line. The City Hall Station Section of the Broad Street Line was estimated in 1915 to require at least one year longer to construct than any other part of that line, and it was accordingly placed under contract in September, 1915, the former Director believing that the remainder of the line would follow a year later. Such schedules must be based on many unknown and uncertain factors, not the least of which are the ability and organization which the contractors bring to the work. In general, as the size of the contract increases these qualifications of contractors tend to improve, hence it is not desirable to subdivide a large piece of work into a number of small contracts.



At the present time the greatest obstacle to making such contracts with the City of Philadelphia is the requirement of the City ordinance of July 5, 1870, that the surety bond on the work shall equal 50 per cent. of the contract limit. This ordinance and the Federal regulation that no surety company can issued a bond on any single contract in amount exceeding 10 per cent. of its capital and surplus make it impossible to adopt this method, as the bond becomes too large for the bonding companies.

Although the effects of the European War were steadily growing more apparent, the City entered the year with high hopes of carrying out the main features of the construction schedule. The United States had not then suffered seriously from the European War, but each month the difficulties increased, until it became practically impossible to initiate or execute large projects in competition with war requirements.

Work to the amount of approximately \$38,000,000 was to have been placed under contract during the year 1917. Unexpected delays occurred and the war conditions upset all pre-war estimates. Three causes combined to prevent the construction schedule from being carried out:

- (a) The delay by the Public Service Commission in issuing the necessary certificate of public convenience.
- (b) The uncertain condition of the labor and material market, intensified by the entry of this country into the war in April, made contracts very reluctant to enter into contracts requiring three years or more for their completion; and the large Liberty Loans of the National Government, which upset the City's financial plans.
- (c) Lack of a contract for the operation of the City's System when built, which was deemed a necessary precedent to construction.

Under conditions at all favorable the entire schedule might have been carried out. Notwithstanding these handicaps, the Department actually awarded contracts during the year in a total amount exceeding \$17,000,000. Two of these awards totalling \$5,700,000 were refused by the contractors - two totalling \$6,500,000 were not signed by the City, and two were reduced in the amount of \$800,000 on account of change of plans, so that the year closed with a net total of but \$4,000,000 of the year's awards under construction - an unsatisfactory result for a year of diligent effort.

#### PROGRESS IN SUBWAY CONSTRUCTION

The contract plans for three sides of the Delivery Loop located in Arch Street, Eighth Street and Locust Street were completed at the close of 1916. Included in those plans were the curves and connections of the Loop to the Broad Street Subway Lines.





These contract plans were drawn in accordance with the plans officially submitted to the Public Service Commission December 29, 1916, with the City's petition for a certificate of public convenience covering this portion of the City's system. These plans were prepared during 1916, and contemplated the extension of the Broad Street Station of the Pennsylvania Railroad northward to Cuthbert Street and the continuation of the tracks of the Pennsylvania Railroad eastward in subway to Thirteenth Street.

Notification of the decision of the Pennsylvania Railroad Company not to make the expenditure necessary to build or protect such provision for future extension was received December 27, 1916, after the City's plans were substantially finished.

To have altered the plans so as to take advantage of this decision would have meant several months delay, and as the public was becoming impatient because subway work was not under way, the plans as they stood were submitted to the Commission, and on January 4, 1917, bids were requested on the following three sections into which the Loop was divided:

Contract	Length in feet	Location
201	2 561	Arch Street; east side of Broad Street to Eighth Street Curve.
202	2 660	Eighth Street; Arch Street to Locust Street including curves
203	2 600	Locust Street; east side of Broad Street to Eighth Street Curve.

Bids on the contracts were opened February 6, 1917, subject to the work being awarded "if and when the certificate of public convenience should be issued by the Public Service Commission." Only six bidders competed for this work, and the bids were as follows:

BIDDERS	CONTRACTS		
	No. 201	No. 202	No. 203
Keystone State Constr. Co.	\$ 1,575,760.00 <sup>1</sup>	\$2,494,142.00	\$1,713,715.00 <sup>1</sup>
E.E. Smith Contracting Co.	1,607,315.00	--	1,755,095.50
Smith, Hauser & MacIsaac, Inc.	1,734,116.00	2,420,303.00 <sup>1</sup>	1,895,034.00
Underpinning & Found. Co.	1,900,617.50	2,942,717.50	2,110,152.50
Phila. Subway Constr. Co.	2,023,115.00	2,763,700.00	2,160,877.00
Rodgers & Hagerty, Inc.	2,402,305.00	3,421,720.00	2,316,592.50

<sup>1</sup>Low Bid.



The appropriation made by Councils "toard the construct-  
ion and improvement" of this Delivery Loop, including pay-  
ment of interest and sinking fund charges during the period of  
construction and for one year thereafter, amounted to \$7,600,000.

On the basis of an interest rate of four per cent. a sinking  
fund of approximately one per cent. and an estimated construc-  
tion period of three years, the Controller decided that 15 per  
cent. of the authorized loan, if and when issued (\$1,140,000),  
should be set aside and reserved for the carrying charges,  
thereby reducing the amount available for physical construction  
to \$6,460,000.

An inspection of the bids received showed clearly that this  
amount remaining would be insufficient to complete the Loop,  
the probable cost of which was then estimated to be as follows:

Total of low bids on Contracts Nos 1 201, 202 and 203...	\$5,710,000
Contracts for entrances, exits, station finish, etc.	
(five stations).....	165,000
Incidentals and contingencies-10% of bids,,,,,,,,,,,,,	588,000
Inspection and Engineering.....	387,000
<hr/>	
Total.....	\$6,850,000

These bids also made it evident that the appropriations made  
for each individual line of the City's System would not be ade-  
quate to build the system as authorized without further loans  
being authorized by the people, and the Department accordingly  
prepared a revised estimate of cost for the entire system based  
on conditions and prices ruling in February, 1917.

By the end of February the contract plans for the Broad  
Street Line were well advanced, but as the Commission had not  
acted on the City's petition for a certificate, the outcome in  
the matter of an operating lease for the City's System was uncer-  
tain, and the authorized expenditure was known to be insuffi-  
cient to complete more than a part of the line, the Director  
hesitated to ask for further bids on subway work. After con-  
ferring with the Mayor, it was decided, as an expedient to save  
time, to request bids on the three portions of the Broad Street  
Line, which formed the southern end of the "First Operating  
Section." Bids were therefore called for on March 6th, to be  
opened on April 3d, subject to the same conditions, as to award  
as the earlier Loop bids.

Con- tract	Length in feet.	Location in Broad Street
103	3,075	North end of City Hall Station Section to Buttonwood Street.
104	4,086.5	Buttonwood to Stilles Street
204	2,960	South end of City Hall Station Section to South Street.





Six bidders also competed for these contract and considering the conditions, the bids varied over a remarkably small range:

CONTRACTS			
	No. 103	No. 104	No. 201
Keystone State Constr.Co.	\$2,815,240.00 <sup>1</sup>	\$2,919,270.00	\$ 3,336,400.00 <sup>1</sup>
Phila. Subway Constr. Co.	2,846,240.00	2,885,941.00	3,495,018.00
Smith, Hauser & MacIsaac, Inc.	3,090,103.00	3,171,505.00	3,491,912.50
Underpinning and Found. Co.	3,292,767.50	3,186,062.50	3,861,435.00
E.E. Smith Contract. Co.	-	3,273,550.00	--
Dock Contractor Company	-	3,461,628.00	--

<sup>1</sup> Low Bid.

On July 25th, two days after the certificate was issued by the Commission, the six contracts were awarded the low bidders as follows:

Contracts Nos. 103, 201, 203 and 204...Keystone State Construction Company  
 Contract No. 202.....Smith, Hauser and MacIsaac, Inc.  
 Contract No. 104.....Phila Subway Construction Company.

As the United States entered the European War on April 6th after the bids were opened, the bidders were reluctant to accept the awards without concessions being made by the City, and at a meeting in the Mayor's office on August 30th, at which all the contractors were present, they were notified by the Mayor that no concessions could be made, and that on account of the unusual developments the City would not attempt to hold them to the bids made before war was declared by our nation. The firms of Smith, Hauser and MacIsaac, Inc., and the Philadelphia Subway Construction Company therefore withdrew their bids, and the Keystone State Construction Company, on September 8th, signed the contracts awarded them, but furnished the necessary bonds on only the Loop Contracts, Nos. 201 and 203. These two contracts were executed by the City and became effective as of September 15th. The Broad Street contracts (for which bonds have not been filed) have not yet been signed by the City.

Work began on Locust Street October 1st and about two per cent. of the contract work was completed at the end of the year.

Work began on Arch Street October 1st and somewhat over one per cent. of the contract work was completed at the end of the year.

Toward the end of the year it became evident that owing to increasing difficulties in getting labor and material, and the attitude of the bonding companies, that all subway work, including the Broad Street Line, would be greatly, if not indefinitely,



delayed. The Delivery Loop forms the center of the City's Subway System, and the design of the curves and connections between the Broad Street Line and the Delivery Loop at Broad And Arch Streets and Broad and Locust Streets will determine the train routings possible on each of the lines using the Loop. The routing provided by the contract plans was only advantageous in case both the Broad Street and Parkway Lines were available for through-routing purposes.

In view of the manifest probability that further work on those lines would be suspended for an indefinite period and the decision of the Pennsylvania Railroad not to make the expenditures necessary to build or secure the provision for the extension of its tracks in subway eastward of Fifteenth Street, thereby removing a factor which had very seriously affected the City's plans since 1914, also the possibility that before subway work can be again resumed the City may modify the plans as now authorized, the Director became convinced that it would be most unwise to construct the curves and connections on the design of the contract plans and thereby commit the City to a routing which might be found unsuited to the City's plans if and when work should be resumed. Therefore, in order to leave the City free to determine this matter at the proper time, the Director, with the legal assent of the City Solicitor made in December an agreement with the contractor that the portion of each contract (Arch Street and Locust Street) lying west of Thirteenth Street should be eliminated from these contracts, and that the limit of cost of the Arch Street Contract (No. 201) should be reduced from \$1,700,000 to \$1,400,000, and the Locust Street Contract (No. 203) reduced from \$1,800,000 to \$1,300,000 a total reduction of \$800,000 or 23 per cent. In view of the fact that the Loop sections embraced in these contracts, by themselves, will be absolutely useless to the City, even when finished, until an entire operating section of Broad Street is completed, the advantage to the City in thus reducing useless interest charges to the extent of \$40,000 per year is readily seen.

The work upon the City Hall Station Section and the Thompson Street sewer continued without interruption throughout the year.

#### REVISED ESTIMATES OF CONSTRUCTION COST.

The bids received on February 6th for the three sections of the Delivery Loop were unit price bids, covering the principal items of the work. The aggregate of these bids was so much higher than the subway bids of 1915 and the 1915 estimates of cost on which the loan appropriations were based that the Department decided to prepare a new estimate of costs based on prevailing prices. This revised estimate assumed that, except in so far as affected by high prices, construction would not be delayed by the European War or other causes, the completion of the lines on the earliest possible date as shown by the schedule of construction which accompanied it, therefore prevailing prices were used.





An abstract of that revised estimate was published in the March 29, 1917 Report of this Department, and a comparative summary of this latest estimate and former estimates is republished here for convenient reference.

This latest estimate of cost was checked by Messrs. Ford, Bacon and Davis, and used by them in their report in a modified form, due to their assumption that by the time funds to the extent of \$45,000,000 had been expended, the remainder of the lines may be built for say 10 per cent. below the estimate - a reasonable assumption, and probably as fair for estimation purposes as to assume that present prices will prevail for three years or more.

### Study of the Northeast and Northwest Branches of the Broad Street Line.

The City's System as authorized provides that such branches northeasterly and northwesterly from Broad Street as are necessary shall be provided as a part of the Broad Street Line. The location of these branches is not specified in the construction ordinance, and during the past four years many locations for these branches have been investigated and studies made for the connections. During the past year the study and investigation of the various complex problems involved in these branches has been continued.

Drawing No. 4185 shows the latest tentative plan, and one having many advantages in its favor, in which the northwest branch emerges as an elevated on Germantown Avenue, just south of Hunting Park Avenue, and the northeast branch becomes an elevated at Twelfth Street, south of Butler Street. In deference to the protests made against an elevated railroad on the Northeast Boulevard, the northeast branch by this plan, while serving practically the same district, follows a route which avoids the Boulevard. The greatest objection to this plan is its requirement that considerable private property must be acquired to make it feasible, and Germantown Avenue must be widened where the northwest line emerges.

As it is evident this work cannot be constructed immediately both on account of the war and lack of sufficient funds, further studies will be made in an effort to obtain the most satisfactory solution.

### The Thirty-Fifth Ward Surface Line

Had normal conditions prevailed a start would have unquestionably been made upon another unit of the Comprehensive Transit System, namely, the surface line system for the Thirty-fifth Ward. This line, authorized by Councilmanic ordinance, is planned to serve a section of Frankford and the Bustleton, Somerton and Byberry sections. Construction drawings, designs for tracks and other important preliminary work, preparatory to the starting of actual construction, have been made, but the plans of the Department to put the work under contract have,



like other work, been given a set back because of the inability to obtain material and the fact that the Government would discourage the starting of this work as not essential to the war program. The plans for this line, however, are so well advanced that the contract for work can be promptly awarded just as soon as it becomes apparent that such work will not interfere in any way with the rules enforced by the Government.

Report Upon Audit of Accounts of the Philadelphia  
Rapid Transit Company

The preliminary report made by the Director to the Mayor, December 27, 1916, upon the proposed form of contract submitted to the City by the Philadelphia Rapid Transit Company on December 20, 1916, contained the following request for an official audit of that Company's books and accounts;

"The Contract of 1907 makes it mandatory that a full statement of the Philadelphia Rapid Transit Company's receipts and expenditures shall be annually submitted to the City Controller, who shall thereupon examine the books, verify the statement and render a report to Councils.

"This cost of this examination, verification and report by the Controller has not been provided for by Councils since 1910, and no official examination of the Company's accounts has been made by the City since that date. An ordinance submitted by the former Director of this Department, authorizing such report to be made at the expense of this Department, failed of passage.

"Preliminary to any serious consideration of this new proposition of the Company, the condition of the former contract should be fulfilled as this official information as to the actual financial soundness and responsibility of the Company to make such a contract should form the basis for the financial terms of the new contract.

"The Company's cards should be placed on the table face up along with the City's.

"I respectfully request that your Honor arrange with the Controller to make such report as is contemplated by the 1907 contract for the period - 1910 to date."

The Ordinance approved January 22, 1917, entitled "an Ordinance to authorize the City Controller to make an examination and audit of the books, accounts and vouchers of the Philadelphia Rapid Transit Company and providing an appropriation therefor," was accordingly passed by Councils.





Under the authorization of this ordinance the City Controller employed the firm of Lybrand, Ross Bros & Montgomery, certified public accountants, who made an elaborate report containing a general audit of the Company's receipts and disbursements and financial obligations, and, in general, confirmed the Company's own annual report to its stockholders, but did not investigate or report the cash receipts by individual lines or routes, or supply any operating statistics or details relating to service, all of which were desired by the Department, and had been a feature of the audits made by the City of earlier years. The report and audit, costing \$7,800, was published by the City Controller and submitted to Councils under date of June 7, 1917. It was therefore not available to the Department in the analysis of the Company's proposal, and of little value in the drafting of the final contract.

#### PROGRESS OF LEASE NEGOTIATIONS AND TRANSIT LEGISLATION

On January 24, 1917, the Philadelphia Rapid Transit Company presented in complete legal form its proposal to operate the City's System which had been submitted in outline to the Mayor and the Joint Committee of Councils on December 20, 1916 (see Page 68 of 1916 Report of the Department). The study made by the Director of the Company's proposal in its original outline and afterwards in its completed form convinced him that the proposal was impossible of acceptance, and that on account of the obstacles, legal and financial, with which the transit situation was encumbered, it could be solved in the City's interest only by approaching it from a radically different standpoint. The Director believed that the standpoint should be "Service at Cost," and before the contract could be made on such a basis additional enabling legislation was necessary. Therefore, early in March 1917, the Director submitted to the Mayor a preliminary report briefly outlining his ideas as to the basis of a lease in the City's interest, pointing out the difficulties in the way of such a lease, and suggesting the legislation necessary to enable the City to absolutely control the transit situation. An abstract of that report follows:

##### The Company's Situation

The Philadelphia Rapid Transit Company is one of several holding companies" standing between the public and the real owners of the various lines. It has bought from the owners and earlier leaseholders the street railway business, but not the lines themselves. The Philadelphia Rapid Transit Company is like a firm that takes over the business and good will of a manufacturing concern, but only leases the factory or plant from that concern. In this report it will be shown that the reason why the Philadelphia Rapid Transit Company is unable to meet the present legitimate requirements of the City for improved transportation is principally because of an excessive drain on its earnings due to exorbitant rentals paid underlying subsidiary companies for the use of their exclusive and perpetual franchises.



It will be made clear that if and when the City buys the stock of the Philadelphia Rapid Transit Company under the terms of the 1907 Contract, it really secures very little physical property for its cash outlay, and gets little besides the Company's leaseholds, rights and obligations; it acquires only the Company's equity in a property mortgaged for practically all it is worth, and yet through its ownership of the Company's stock, it will assume the duties and obligations of the Philadelphia Rapid Transit Company to the subsidiary companies, and thereby practically place the City's guarantee upon the payment to them of the rentals due them under the terms of the various leases.

The seeming prosperity of the Company, due to the war, is only ephemeral and must be disregarded in considering the real value of the property. The Philadelphia Rapid Transit Company is actually but the outer shell around all the various transit interests-protecting all the subsidiary companies, bearing all their burdens and assuming all their obligations to the public. The plan of finance which was devised in the early 80's for the consolidation of the various conflicting transit interests has reached its limit and broken down and now that the City proposes to lend its assistance in transit development, a new and radically different financial plan is absolutely necessary for the City's protection. The plan which the Company proposes is bad for the City now and may be worse later, and it is evident that enabling laws must be passed before the city can assume adequate control over the transit situation.

### A Suggested Solution

In the attempt to work out a plan for the unified operation of the Company's and City's Systems upon a five-cent fare basis this Department has struggled with the many difficulties of the situation, and after much study now presents as a suggested solution the outline of a plan which is based on the City's eventual ownership of the entire transit plant of the City, including the recapture of all such franchises as the City has granted at various times during the past sixty years. This is not a proposal of a new plan, but is a development of the one which the City has already initiated. The City, by its authorized expenditure of \$63,000,000, is now committed to actual ownership of at least one-third of the contemplated Unified System, and it is the heavy fixed charges on the other two-thirds of the system now controlled under leases by the Philadelphia Rapid Transit Company which form the obstruction in the way of a lease upon the terms desired by the City. This plan is a suggestion that the City take over as soon as legally and financially possible the Company's two-thirds interest in the property and refinance it on a basis determined by the Public Service Commission by substituting City capital for private capital. This is not to be a plan of confiscation, but of refinancing a public utility corporation that for ten years or more has been practically bankrupt and with the advantages of the refinancing flowing to the City, as is entirely proper. It is a plan to ultimately substitute the City's bonds for the Company's stocks.





This plan will require enabling legislation to be enacted before it can be put into full effect. The Public must not confuse this suggestion on public purchase and finance of a public utility with municipal operation. Municipal operation is not expected nor intended. It is intended that after ownership shall have been acquired by the City the entire Unified System shall be leased to an operating company for a period of years upon mutual satisfactory terms, the same as has been done with the City's gas works. This plan as suggested is simply a financial plan, having for its object making an operating lease possible and feasible.

#### Legislation Needed

The entrance of the City into the passenger transportation business, which up to this time has been conducted as a private enterprise, calls for a complete readjustment or reorganization of that business to meet the new conditions. Present laws, while authorizing the financing of construction and operation of lines, have been careful to provide such protection to vested interests in existing lines as to make any attempt to correct their inflated capitalization practically impossible except by a resort to competition with such lines. New laws are needed and old ones need amendment in the City's interest.

An amendment to the Public Service Company Law, known as the "Through-Routing Bill," which was introduced at the last session of the Legislature, and which failed in passage, was recently reintroduced, and should be enacted at this session.

The act of General Assembly, No. 336, approved June 17, 1913, under which the City is proceeding to build its High-Speed System, by Section 6 provides that the City.

"\*\*\*\*\* may purchase, acquire, enter upon, take appropriate, occupy, and use such lands, rights and interests therein, property and franchises, within their respective corporate limits, and within the corporate limits of adjacent cities, boroughs and townships, as shall be necessary for the acquisition, location, construction, maintenance, use and operation of transit facilities."

This Act, however, is modified by the final clause -

" Provided, however, That the right hereby conferred shall not be taken as authorizing the taking or appropriating of any railroad or railway in operation in said cities."

This proviso stands in the way of the City recapturing by condemnation, or other exercise of its municipal authority, the franchise and whatever rights and property it may desire to acquire and appropriate of the Philadelphia Rapid Transit Company or its subsidiaries.

The proviso as worded would cover steam, high-speed, surface or any other form of railway or railroad, provided it were an operated line.



The City does not now contemplate recapturing any of the franchises or property of the steam roads engaged in interstate commerce and the proviso should be limited to that class of railroads.

The City should be given the right to condemn any objectionable franchise or property belonging to the local transportation company, and the law should specify the form of procedure to be taken by the City and the method by which the price to be paid by the City shall be determined.

This Department suggests that the valuation to be placed upon the property and franchises at which the City could recapture them should be determined either by a properly constituted Board of Arbitrators or by the Public Service Commission, as is provided in the determination of a rate case.

Furthermore, a local legal commission or other body should make a report and determine what legislation is necessary in order to enable the City to enter into what is virtually a partnership with a private corporation, if such partnership should be deemed desirable, and if necessary the Constitution of the State should be amended so as to more accurately define the meaning of its prohibition "that the City's credit shall not be loaned to a corporation." This should be made definite as to whether an indirect loan of credit is to be considered a loan, and whether a merger such as is proposed is a loan of the City's credit.

There has been a growing disposition for some years to interpret the Constitution and laws of the State so as to permit an increase in the City's commercial or business activities, and as there is a growing tendency, all over the country towards municipal ownership of the utilities of a city, and as the City has for many years owned two of the largest of its public utilities and has now authorized the investment of a huge sum in another utility, the general laws should be modernized so as to permit the City to properly operate these utilities without unnecessary inconvenience as to financing and operation.

The Public Service Company Law should be so amended as to permit the formation of a board of control over the transit lines, both as to construction and operation, somewhat along the lines recommended by the recent commission for Chicago, and this board should have certain powers over the local situation now resting entirely with the State Commission.

In addition, in order to make possible and practicable the necessary financing, the City should be allowed to borrow money giving as security its public utilities, and this borrowed money should not be considered as a part of the City's net debt to the extent that it is self-supporting.

Section 8, Article IX, of the Constitution as it now stands limits this condition to the specified purpose of "the construction and improvement of subways, tunnels, railways, elevated railways and other transit facilities, and for the construction of wharves and docks, and the reclamation of land to be used for the construction of wharves and docks to be used by the City."





This excludes the City from utilizing immediately the power to condemn the existing system, even if enabling legislation should be enacted.

This section of the Constitution should be amended so as to exclude from the calculation of the City's indebtedness such amount as may be carried by the earnings of the utility in which the City's money is invested, whether it be railways constructed by the City, or whether it be water works, gas works, wharves, docks or other municipal improvements which produce revenue.

Furthermore, the Act of May 9, 1913, No. 129 of the Acts of General Assembly, supplementing the Bullitt Bill, so as to provide for the creation of the Department of City Transit, should be amended so as to either increase the scope and authority of the Department or so as to abolish the Department and merge it with the local board of transit control mentioned herein.

As the situation develops further, additional enabling legislation may be found necessary, but from the above it should be evident that the City cannot expect to immediately clarify a situation which is the result of sixty years of development, and which contains many conflicting elements about which there is no unanimity of opinion.

The present legislation, under which transit development is proceeding, appears to have been drawn up with the idea of accomplishing one specific purpose and not with the idea of giving the City broad general powers.

The power of private and vested interest is so strong that the legal to accomplish what is evidently desirable from a public standpoint are often found difficult to obtain.

One missing link in the chain of legislation will often prevent the realization of a plan regardless of how well it may have been conceived and advocated.

On March 22, 1915, the "Through-Routing" bill referred to in that report had been introduced in the Legislature and referred to the Judiciary General Committee, but was never reported by that Committee.

(See pages 27, 111 and Appendix "K" of the 1915 Report of this Department.)

At the next session of the Legislature (1917) this same bill, at the request of the Department and with the approval of the Mayor, was introduced by Representative Gans, of Philadelphia, on February 13th and passed the House of Representatives, but was later superseded by a bill of wider scope, known as the "Salus Bill", which will be referred to later.



Upon recommendation of the Director that the Legislature of the State, then in session, should be requested to enact for the City of Philadelphia a part at least of the enabling legislation outlined in the preliminary report, his Honor, the Mayor, decided to engage the services of an expert adviser to assist in the special work of preparing and advancing such legislation. Such an adviser it was decided at the outset should be an attorney of high attainments, free from political and corporate influence and affiliation. To obtain an attorney who would measure up to these requirements and in whom the public would have absolute confidence was no easy task. Dr. William Draper Lewis, former dean of the Law School of the University of Pennsylvania, was selected as an Ideal man, and was persuaded to act as the legal adviser of the Mayor in these matters. He subsequently acted in the same capacity to the Director in the negotiations with the Philadelphia Rapid Transit Company, and his devotion to his duties and the untiring and masterful manner in which he conducted the legal side of the legislation and the negotiations for a "contract-lease" was of incalculable aid to the City of Philadelphia.

Dr. Lewis entered upon the task with vigor. Preliminary to preparing the enabling legislation he made a careful study of the entire transit situation and decided what measures were necessary to carry out the City's plans and purposes. Three distinct measures were found to be needed. Bills covering these measures were accordingly drafted and were introduced in the legislature in the following manner:

1. "Hecht Bill", introduced by Representative Hecht on April 2, 1917.

This is an eminent domain bill "Authorizing any city of the first class to acquire street railway transit facilities within such city or adjacent thereto, and the franchises for operating the same, by the exercise of the power of eminent domain; providing for the determination by the Public Service Commission, subject to appeal, of the amount of compensation to be paid for the properties, and franchises taken; and empowering such city to operate, maintain, use, lease, license, or contract for the operation of the facilities, so acquired." This bill was approved by the Governor July 19, 1917, and appears as Appendix C-1 to this report.

2. A joint resolution proposing an amendment to Article IX, Section 8, of the Constitution of Pennsylvania, introduced by Representative Hecht, April 2, 1917.

This is a proposed amendment to the Constitution of the State enabling the City to finance any public utility which it may condemn under the provisions of the Hecht Bill. This resolution passed the Legislature, but to become effective must be passed at the 1919 session of the Legislature, and must then be approved by the voters of the State at the following general election. (See Appendix C-2 of this report.)





3. Supplement to the Public Service Company Act of 1913 introduced by Senator Salus, of Philadelphia, April 9, 1917.

This Act superseded the "Gans Bill" introduced earlier in the session. This later Act required "street railway corporations whose facilities cross or are adjacent to the facilities of street railway lines owned, leased or operated by municipal corporations, under certain circumstances to establish transfer points and switch or other connections at points of crossing or adjacency and through routes and service and joint rates for the conveyance of passengers over two or more lines connected at transfer points, giving the Public Service Commission jurisdiction in the premises and prescribing the conditions upon which the Commission shall have jurisdiction to regulate the joint facilities, services or rates of a street railway corporation and a street railway line owned, leased or operated by a municipal corporation."

It should be noted that the "Hecht Bill", and the Constitutional Amendment are financial measures aimed to provide practicable methods for bringing about the financial ownership by the City of the entire local transportation system. The Salus Bill, however, was an operating measure enabling the City, through the Public Service Commission, to secure the benefits of unified service in case of the failure to reach a satisfactory agreement with the Philadelphia Rapid Transit Company. Although these bills were purely local in their application, the Salus Bill was immediately made the target of vigorous opposition by the street railway interests of the entire state. It was referred to the Judiciary General Committee of the Senate and at hearings before that body representatives of the City and the Company appeared on several occasions. The Mayor made it plain to the Committee that nothing but injustice to the people of Philadelphia could result from the failure of the Legislature to pass the amendment, and after much objection the Act was passed by the Senate on June 20th. The bill then went to the House of Representatives for concurrence, and, although a vigorous appeal was made for its passage by the Mayor, the Director and representatives of leading business organizations of Philadelphia, the bill was defeated on June 27, 1917. The defeat of this bill was a keen disappointment to the Mayor and officials of the Department, as they had regarded this bill as being almost indispensable in order to negotiate an equitable contract with the Philadelphia Rapid Transit Company for joint service on the two systems. The close of the 1917 session of the Legislature found the City's position strengthened, however, by the placing of the "Hecht Bill" on the Statute Book.

During the months of January, February and March, while the legislation deemed necessary to form an equitable basis for a contract between the City and Company was being prepared and advanced, the Director, with the assistance of the Consulting Engineers, Ford, Bacon & Davis of New York analyzed the proposal which the Company had submitted, and on March 29,



1917, an analysis of it was issued as a report by the Director to the Mayor. Abstracts from this report and the report of the Consulting Engineers appear as Appendices A-2 and A-3 of this report. On the same date, March 29, 1917, the Mayor forwarded to Councils at a special meeting the Company's proposal, accompanied by these reports and the following letter of transmittal:

"On October, 10, 1916, I personally addressed your Honorable Bodies upon the transit situation and transmitted to you an ordinance containing a proposed agreement to be entered into by the City with the Philadelphia Rapid Transit Company, the Union Traction Company and the Market Street Elevated Passenger Railway Company for the equipment and operation of the high-speed lines authorized to be built out of loans approved by the people of Philadelphia. Acting upon my suggestions, your Honorable Bodies referred my message and the ordinance to the Finance and Street Railways Committees. Open meetings were held by those Committees to which the public and the representatives of the Philadelphia Rapid Transit Company, the Union Traction Company and the Market Street Elevated Passenger Railway Company were invited. After several of these meetings had been held the officials of the Philadelphia Rapid Transit Company delivered to me a counter-agreement. This agreement was turned over to the Director of City Transit for examination and report.

"After a most careful and painstaking examination and investigation, and after consultation with the expert firm of Ford, Bacon & Davis, the Director of City Transit has delivered his report. That report, together with the proposed I counter-agreement of the Philadelphia Rapid Transit Company, I now transmit to your Honorable Bodies for consideration and action, knowing as I do that you will give this entire matter most careful attention, and that you will do full justice by all parties concerned."

The Joint Councilmanic Committee on Finance and Street Railways, to which the matter was referred, held its first public hearing in the Common Council Chamber on Friday, May 18th. In opening the meeting, the Chairman, Mr. Gaffney, announced, "We are here today to hear argument, to hear explanation from those who prepared the lease and who are in favor of the City of Philadelphia adopting it." The first speaker called was Mr. A. M. Taylor, former Director of this Department. Mr. Taylor had assisted in formulating the terms of the Company's proposal and on April 16, 1917, had published and circulated a 36-page pamphlet vigorously defending the Company's proposal and opposing the enactment of the special legislation sought by the City from the Legislature at Harrisburg, which he denounced as vicious and unnecessary. He presented his argument before the Committee in a printed statement in which he championed the Company's proposal, and then answered questions concerning the proposal addressed to him by members of the Committee.

Mr. E. T. Stotesbury, the Chairman of the Board of Directors of the Philadelphia Rapid Transit Company, then read a prepared address, setting forth the reasons for his connection with the Company, and the work of rehabilitation that had been accomplished during that six-year period. He closed that address with the following statement:





"As representing the stockholders of the Philadelphia Rapid Transit Company, it seems to me that they ought not to be asked to make further sacrifices in this matter. Nor would I be willing, speaking for them as I have the power to do under the voting trust, to consent to any changes in the proposition now before you which would result in taking away from them the assurance of a return of five per cent. on the stock.

"I do not, however, wish to stand in the way of a settlement of this question, and if those speaking for the City feel for any reason this contract cannot be accepted and that a contract should be negotiated with the Philadelphia Rapid Transit Company on terms that may take away from them that return, I and my associates will resign from the management of the Company. The voting trust will then be dissolved. The Rapid Transit stockholders, through its new Board of Directors, can negotiate a new contract with the City on such terms as may be agreed upon."

Ellis Ames Ballard, Esq., attorney for the Company, then followed and explained the meaning of the legal details, and answered many questions relating to the Company's equipment and method of finance.

David H. Lane, Esq., followed with an argument based on the claims of vested interests in the property, and the meeting adjourned until Friday, May 25th, 1917.

At the second hearing of the Committee a letter from the Company's attorney, Mr. Ballard, prepared in response to the suggestion made by the Chairman at the previous meeting, was read.

"If the contract shall be amended so that the City is to furnish the equipment as well as construct the rapid transit facilities, the Company will assume the interest and sinking fund charges on bonds issued by the City to cover cost of equipment as a fixed charge payable out of the gross receipts of the combined systems before any payments are made on Philadelphia Rapid Transit Company stock, and in this case it will be willing to have the fare provisions rewritten with the general statement that the fare to be charged shall always be sufficient to produce gross revenue and net earnings sufficient to meet the operating expenses of the Unified System and the payments provided for in Article XIX, Paragraph 3, Sub-sections (A), (B), (C), (D) and (E), all changes or adjustments in the fare, if changes or adjustments become necessary to produce this amount of revenue, to be subject to the approval of the Public Service Commission."

At this meeting the opponents of the contract were heard, beginning with Colonel Sheldon Potter, the City's representative on the Board of the Rapid Transit Company, who pointed out the general effect of the contract and many of its defects. Dr. William Draper Lewis then followed with a statement of legal defects in the Philadelphia Rapid Transit Company's proposal and the limitations of the present laws of Pennsylvania.



Mr. Edward A. Noppel, President of the United Business Men's Association, then followed with a statement objecting that the contract was not fair to the City.

C. Oscar Beasley, Esq., representing The Overbrook Association, then followed with a statement opposing the ratification of the contract.

Mr. Sidney M. Earle, Chairman of the Transportation Committee of the United Business Men's Association, then read a paper opposing any agreement with the Philadelphia Rapid Transit Company which did not provide a unified system with free transfers on a five-cent fare basis, and as an alternative advocated the operation of the City's System as a municipal activity.

Edwin M. Abbott, Esq., Chairman of the Law Committee of the United Business Men's Association, then followed with a vigorous argument against the contract-lease, on the ground that it was drawn "by opposing any lease or contract being drawn until new legislation should be available, and suggesting that a form of contract be drawn jointly by representatives of the Company and the City.

Select Councilman George C. Ulrich, of the Forty-second Ward, presented a short statement advocating a contract based upon the pending legislation, and the meeting was closed with a statement by Mr. Charles L. Fluck, President of the Northwest Business Men's Association.

Mr. Fluck's argument was principally a taxpayer's protest against the City assuming the deficits and any operation contemplated under the form of lease under discussion and resulting from the five-cent fares.

The meeting then adjourned until Friday, June 1, 1917.

At this hearing the Director explained to the Committee the reason for his opposition to the lease under consideration, and by means of lantern slides presented to the Committee a number of diagrams which had appeared in his report of March 29th.

Mr. John E. Moore, representing the Southwestern Business Men's Association; Mr. Charles L. Fluck, representing the Northwest Business Men's Association; Dr. Elizabeth Snyder; and Mr. Harvey J. Miller, representing the North Penn Improvement Association, then addressed the Committee, after which the committee adjourned, and at the final hearing on Thursday, June 7th, presented a report to Councils as follows:

" The joint Committees on Finance and Street Railways, to which were referred certain messages from the Mayor and bills dealing with the proposed lease of the City's high-speed lines to the Philadelphia Rapid Transit Company, the first dated October 10, 1916, and the second March 29, 1917, respectfully report that they have carefully considered the same, and return them to Councils with a negative recommendation, together with the annexed resolution entitled "Reso-





lution discharging the Joint Committees on Finance and Street Railways from the further consideration of the aforesaid bills dealing with a proposed lease of the City's high-speed lines to the Philadelphia Rapid Transit Company,' and an ordinance entitled 'An Ordinance authorizing and directing the Director of the Department of City Transit to prepare a form of lease of the City's high-speed lines to the Philadelphia Rapid Transit Company, and authorizing employment and payment of necessary help and assistance,' and return them to Councils with a favorable recommendation and ask the passage of the same."

### Resolution of Rejection

The resolution by which the Company's proposed lease was rejected follows:

Resolution of request to the Joint Committees of Finance and Street Railways to report to Councils with a negative recommendation the two bills providing for the equipment, operation and leasing of the City's high-speed lines, transmitted to Councils by his Honor, the Mayor, on October 10, 1916, and March 29, 1917.

Resolved, That the Joint Committees of Finance and Street Railways, to which was referred on October 10, 1916, and March 29, 1917, bills providing for the equipment, operation and leasing of the City's high-speed lines, report these bills to Councils with a negative recommendation; and, be it further

Resolved, That an ordinance be reported to Councils requesting the Director of the Department of City Transit to prepare and present to Councils as speedily as possible, so that the same may be submitted to the Philadelphia Rapid Transit Company for its acceptance or rejection, as required by the 1907 Contract, a lease fair alike to the City and the Transit Company for the operation of the City's high-speed lines.

The ordinance authorizing and directing the Director of the Department of City Transit to prepare a form of lease on the City's high-speed lines follows:

Section 1. The Select and Common Councils of the City of Philadelphia do ordain, That the Director of the Department of City Transit be requested to prepare and present to Councils as speedily as possible, so that the same may be submitted to the Philadelphia Rapid Transit Company for its acceptance or rejection, as required by the 1907 Contract, a lease fair alike to the City and Transit Company of the City's high-speed lines.

Section 2. That to enable the Director of the Department of City Transit to prepare said lease he be authorized to secure whatever assistance and help- engineering, legal or otherwise, which he and the Mayor may deem advisable and necessary, the same to be paid out of any unexpended balances of loans.



This ordinance was passed by Councils on June 21st, and approved by the Mayor on June 28, 1917.

The discussion before the Councilmanic Committee of the Company's proposal had emphasized the apparent futility of further negotiations with the Company unless the City were fortified with an alternative. The only feasible alternative seemed to be independent operation of the City's System, providing the advantages of joint routing and transfers with the Company's lines were made possible through the enactment of the "Salus Bill." Upon the defeat of that bill on June 27th the prospect seemed remote that the Director could, as provided by the ordinance of June 28th, devise or formulate any contract which would be fair to the City, and still be acceptable to the Company.

In the Director's report to the Mayor, dated March 29th, upon the Company's proposal, the Director in lieu of a counter-proposal had laid down certain principles upon which he felt any lease fair to the City must be based. The views of the Company were radically at variance with these principles, and as the Company felt secure in its entrenched position and the Director felt equally positive as to the City's right to demand a contract which recognized the interest of the public, a deadlock seemed imminent. Although each recognized the advantages flowing from a fair contract, each wished to avoid the corresponding obligations and liabilities assumed under such a contract. Each proposal had, up to this time, been drafted almost entirely by the side submitting the proposal, and representatives of the other side were ignored. One of the Company's objections to the draft prepared by the City and presented to Councils on October 10, 1916, was as stated by the Company's attorney on November 17th:

" That is a draft in the preparation of which the Philadelphia Rapid Transit Company representatives have had no voice. "

Curiously enough, the Company in drafting its counter-proposal to the City overlooked this criticism it had made of the City's procedure and ignored the City's representatives.

In the report made to Councils March 29th referring to the draft submitted by the Company, the Director stated as follows:

" The City's representatives have not been consulted as to the fairness of the proposal or the claims of the City in the preparation of this draft. It has been prepared by adroit and skilful attorneys along lines which appear to have been dictated by bankers or guardians of vested interests, so as to fully protect them regardless of the City's rights and interests. "

It had by this time become evident to both the City and the Company that, in order to comply with the terms of the ordinance of Councils, the Director must have the co-operation and not the opposition of the





Company in the formulation of the terms of any contract "fair alike to the City and the Transit Company."

Immediately following the defeat of the "Salus Bill" the President of the Company indicated to the Mayor his willingness to cooperate with the City in drafting a contract along lines specified in the ordinance. Several informal meetings were held to discuss the basis of a fair contract, and as a result of these meetings, on July 10th at a meeting in the Mayor's office, the following tentative basis for a "fair contract" was agreed upon between the Mayor and Director, representing the City, and Mr. Mitten, President, and Mr. Stotesbury, Chairman of the Board, representing the Company.

Outline of Tentative Agreement Reached in Mayor's Office, July 10, 1917,  
Between the Mayor and Director, Representing the City, and Mr.  
Mitten and Mr. Stotesbury, Representing the Company.

The Philadelphia Rapid Transit Company to operate as a part of its system (under the terms of the 1907 Contract) all lines authorized to be built by the City under the existing ordinances, and such other lines as may be mutually agreed upon or ordered by the Public Service Commission as extensions of authorized system.

Funds for purchase of Equipment of City's Lines shall be furnished by City, or, at City's option, by the Company, if Company can supply the money at a rate not to exceed six per cent. on its cost.

Company's and City's System to be operated as a Unified System, starting with fares as provided by 1907 Contract-- (present fares).

City's Bonds issued for Construction and/or Equipment of Transit Facilities to be guaranteed by the Philadelphia Rapid Transit Company as to Interest and Sinking Fund under 1907 Contract.

Earnings. Gross earnings of Unified System to be distributed as follows:

1. Operating Expenses.
2. Taxes.
3. Maintenance and Renewals (without reserves).
4. Interest and Sinking Fund on present or refunded bonded and secured debt.
5. Rentals of Philadelphia Rapid Transit Company.
6. Interest on New Capital--P.R.T. Co.
7. Reserves for Depreciation, etc.
8. Payments due City under 1907 Contract.
9. City's Interest and Sinking Fund Charges.
10. P. R. T. Co. Divident up to six per cent.
11. Divide balance 50%-50% as per 1907 Contract.

Fare. Whenever gross earnings of Unified System are not sufficient



to pay the first nine items above set forth and four per cent. on the Capital Stock of Company (the fairness of a four per cent. dividend being conceded by the City under this agreement) the City hereby agrees to join with the Company in an earnest appeal to the Public Service Commission to order a just and reasonable fare (which may be by flat increase and/or charge for transfers), which fare will produce sufficient gross earnings to care for the first ten items.

Back dividends on Philadelphia Rapid Transit Company to be waived up to July 1, 1916.

Abolition or modification of exchange tickets to be treated by the Public Service Commission in connection with the fare requirements under this Contract.

This tentative outline was substantially an agreement that the City's System should be accepted by the Company and taken into the Company's System on the plan provided in the 1907 Contract, viz.:

" Third. In case at any time in the future Councils shall, either of its own initiative or upon petition of any of the citizens, determine that new lines of surface, elevated or underground railway should be constructed within the City, it shall, by ordinance, determine the route of such line, and the terms and conditions under which it shall be built, financed and operated, and the Company shall have ninety (90) days after the passage of such ordinance to take such corporate action as may be necessary to accept the same, certified copies of which action shall be duly filed with the Mayor within said period of ninety (90) days. \* \* \* \* And provided further, That in the case of the construction of new lines the capital necessary therefor shall, as far as practicable, be raised upon bond issues bearing the guarantee of the Company as to principal and interest, which bonds shall be issued in denominations of one hundred (100) dollars, five hundred (500) dollars, and one thousand (1,000) dollars, and be offered to public subscription, but in no case shall they be sold for less than par."

The Director held that the fact of the City's acting as banker in financing these lines did not relieve the Company of the obligation to guarantee the payment of the principal and interest of the bonds issued to pay the cost of the lines. These payments thereby would become a part of the fixed charges of the Company's System, and in view of this large liability which the Company would assume the City conceded that it would be fair to assist the Company to secure at least a four per cent. dividend to its stockholders by joining with the Company in a petition to the Public Service Commission for "a just and reasonable fare,"





whenever existing fares did not yield such a return. In fact, this tentative agreement contemplated the modification of the 1907 Contract only to the smallest extent possible by this change of the fare clause.

After agreeing upon this tentative basis for the contract the Company delegated Mr. A. L. Drum, the Company's Consulting Engineer, to be the Company's representative, who should work with the Director of the Department as the City's representative, and Dr. William Draper Lewis as the Mayor's Special Counsel in formulating and working out the details of the contract.

The Company's and City's representatives applied themselves steadily and vigorously to the task, and prepared a draft following the idea of the tentative outline as closely as possible. At a special meeting of Councils on August 17th, called by the Mayor for the purpose, the Mayor submitted the draft which had been prepared, together with a letter of transmittal. This new draft differed from its predecessors in the following features:

1. In providing a practicable financial plan for the City in that the City's interest and sinking fund charges on its bonds issued to pay for its transit facilities shall be considered as junior fixed charges of the Unified System, and as such paid in full before the Company's dividends.
2. In providing that the fare shall equal the "cost of the service," and in recognizing the fact that the law provides that the Public Service Commission shall fix and determine from time to time what shall be a just and reasonable fare to be charged on the whole or any part of the Unified System.
3. In providing a working method for joint control of all transit facilities and service by the creation of a Board of Supervising Engineers.
4. In making the Lease of the City's System conform to the 1907 Contract and the term of the Contract uniform with the 1907 Contract, whereas former drafts contemplated the extension of the term of the 1907 Contract by approximately ten years.
5. In providing no "Preferential" payment to the Company, payments to protect the Company's net earnings, or guarantees as to dividends to the Company out of the earnings of the Unified System, as compensation for the Company's co-operation in the City's program of Transit Development.
6. In using the term "Transit Facilities" as defined in the Contract, to cover all parts of a complete operating railway system, and



thereby eliminating the distinction between "construction" and "equipment" which existed in all former drafts.

In accordance with the Mayor's request that public hearings be held to consider the terms of this contract, the draft was referred to the Joint Standing Committees on Finance and Street Railways, and that Committee held its first meeting to consider the draft on September 7th.

At the opening of the first hearing, the Chairman, Mr. Gaffney, announced

"every opportunity is going to be given to the people of Philadelphia to thoroughly examine this lease and ample opportunity given all to discuss this proposed lease at public meetings. We will have as many meetings as necessary in order that everybody may have that opportunity, and we will sit here, if necessary, until the snow flies that everybody may understand the lease, but if they have any suggestions or improvements upon this lease to offer, they are going to be received with welcome. This Committee has 'no-cut-and-dried' policy. This Committee is interested in only one thing, and that is to have a lease with the Philadelphia Rapid Transit Company that is satisfactory to the people of Philadelphia."

The secretary then read the list of invitations to attend the meeting sent to individuals who had expressed an interest in the provisions of the lease.

At this meeting Mr. John N. McGarvey, C. Oscar Beasley, Esq., Dr. William Draper Lewis, Mr. Ellwood B. Chapman, Mr. John O. Sheatz and Mr. A. M. Taylor appeared before the Committee.

Dr. William Draper Lewis filed a statement with the Committee explaining the lease in detail and the reasons for the many novel features and provisions.

Inasmuch as the firm of Ford, Bacon & Davis had assisted the Director in the examination of the proposed contract submitted by the Company, the Director, on August 3d, requested them "to furnish the firm's opinion as to the fairness and desirability of this lease from the Company's and City's standpoints" (see Appendix B-2). On September 4th the engineers rendered an opinion and suggestions on the new draft, and on September 6th rendered a supplemental opinion, making several minor suggestions





which they felt would improve the contract from the City's standpoint (see Appendix B-2).

At the hearing on September 21st this opinion of Ford, Bacon & Davis was submitted to the Committee, together with an opinion by Dr. William Draper Lewis on the suggestions made by the Consulting Engineers. Also, the Director submitted in pamphlet form a discussion of the basic principles and provisions of the proposed contract, and Mr. A. M. Taylor submitted a pamphlet comparing the contract under discussion with the Company's rejected proposal, and almost the entire session of the Committee was taken up with a controversy between Mr. Taylor and his attorneys, who attacked the provisions of the contract, and Dr. Lewis, who defended them.

At the following hearing on October 5th the principal speakers were James Collins Jones, Esq., Dr. William Draper Lewis and the Director, all speaking in defense of the contract.

At the hearing on October 19th, Mr. Charles L. Fluck, representing the Northwest Business Men's Association, was the chief speaker in defense of the contract.

Mr. Fluck reviewed the various forms of contract which had been proposed previously, and the stand he and his Association had taken in favor of the abolition of exchange tickets and suggested amendments be made to that end; he argued from the taxpayers' standpoint, and heartily commended the main provisions of the contract before the Commission.

At the hearing on November 2d the chief speakers were delegates from the United Business Men's Association. Mr. Sidney M. Earle, Chairman of the Transportation Committee of the Association, was the first speaker; Edwin Abbott, Esq., Chairman of the Law Committee, and C. Oscar Beasley, Esq., an attorney, representing the Association, followed, all opposing the provisions of the contract for change of fare and securing extensions of the Company's lines, vigorously attacking the financial structure of the Philadelphia Rapid Transit Company. Colonel Sheldon Potter, one of the representatives of the City upon the Board of the Philadelphia Rapid Transit Company, then spoke at length in favor of the principles upon which the proposed contract was founded, and Mr. William Hancock, his colleague on the Company's board, also spoke briefly in support of the City's proposal. Dr. Lewis then stated as follows:

" Throughout these hearings I have taken the position that the Director and I should not submit amendments to the draft as sub-



mitted until opportunity for a fair public discussion was had, but that after such opportunity had been given, no time should be lost in submitting amendments. If for any reason Councils or the Company is unwilling to prevent and execute a lease on the general lines of the lease now before this committee, it is important that this fact should be known as soon as possible, because such an attitude on the part of Councils or the Company would mean independent operation of the City's System either by the City or a lessee other than the Transit Company, and independent operation means several changes in the construction plan and program. It would seem therefore that a determination in regard to the lease now before you should be reached as rapidly as possible, consistent with opportunity for full and public discussion. If it meets with the approval of your Committee, on behalf of the Director, I shall submit

"First. The text of all amendments submitted to this Committee in the course of these hearings, together with any comments thereof that may seem proper to the Director.

"Second. Any amendments which the Director and I desire to submit, together with our reasons therefor. To enable this to be done, I ask for the usual adjournment of two weeks."

The Committee then adjourned for two weeks, provided the amendments were completed by that time, and if not the next meeting of the Committee should be at the call of the Chair.

The revised and amended draft of the proposal was submitted at the hearing held December 7th, and was discussed by the Committee and explained in detail by Dr. Lewis, Director Twining and Ellis Ames Ballard, Esq.

Following the hearing on December 14th a letter was read from Mr. Ellwood B. Chapman, President of The Chestnut Street Association, transmitting the opinion of the Association that

"it would be unwise for the City to attempt to complete its subway system now or to enter into negotiations for a lease covering a period of years. We urge that no lease be made with the Philadelphia Rapid Transit Company at the present time, with the exception of a temporary agreement for the operation of the Frankford Line."

Also a letter from Mr. A. M. Taylor, submitted in pamphlet form, protesting against the proposed contract, opposing many of its fundamental features, and advising: "My fellow-citizens--especially those who are street railway passengers--to promptly take such measures as may be required to prevent its adoption." Also a letter from Mr. Charles L. Fluck, President of the Northwest Business Men's Association, urging the acceptance and passage of the ordinance.





Director Twining protested against the recommendation of Mr. [redacted] that negotiations for a lease should be suspended until the war was over and the economic affairs of the nation had settled down to a normal basis, and opposed a temporary agreement for the operation of the Frankford Line in lieu of a general contract for the operation of the City's entire system.

Dr. William Draper Lewis, also Oscar C. Beasley, Esq., and Mr. John E. Moore addressed the Committee, and Edward B. Martin, Esq., presented the request of the United Business Men's Association asking for a hearing upon the lease, and presented a resolution of the Association that

"no lease should be consummated at the present time, and negotiations should not be resumed until the war is over; also, that a short term lease for the Frankford Line to the Philadelphia Rapid Transit Company should be arranged or that line operated as an independent line by the municipality."

At the hearing on December 18th representatives of the United Business Men's Association presented their arguments against the amended contract. Mr. Edward A. Noppel, President of the Association, was the first speaker, followed by Mr. George Albert Drovin, Secretary of The Chestnut Street Association. Resolutions adopted by The Overbrook Association and the Philadelphia Board of Trade, recommending postponement of lease negotiations, were presented.

Dr. Lewis then presented an argument, and a number of amendments were submitted for consideration. Part of these amendments were incorporated in the draft, which was reprinted and submitted at the hearing on December 21st.

At that hearing a communication was received from the United Business Men's Association reaffirming their recommendation that the lease should not be consummated at this time.

Dr. Lewis then explained the further changes that had been made in the draft, and explained to the Committee the reasons therefor, and additional amendments were suggested and adopted. On motion of Select Councilman Mr. Charles Seger the ordinance as amended was reported to Councils with a favorable recommendation. It was passed by Common Council, 63 yeas to 8 nays, on December 31st, and concurred in by Select Council, 37 yeas to 4 nays on January 3, 1918, and was immediately signed by the Mayor.

This ordinance as signed appears as Appendix B-3 of this report.

The Department experienced no small sense of relief and gratification when, after four years of negotiations and after numerous public hearings, City Councils authorized the contract which responsible representatives of the City and Company felt to be "fair alike to the City and Company." The ordinance as finally passed (see Appendix B-3) is the result of many amendments made in the draft as originally introduced, but still adheres as closely as possible to the basic principles set forth by the Director on March 29, 1917.



Several features in the authorized form of the contract are novel, and it is not to be expected that all persons interested will unqualifiedly advocate all of its provisions, but the Department believes it to be the best and most equitable form of contract obtainable under existing laws and conditions.

In view of the importance of this matter, the seeming lack of interest on the part of the general public in the hearings held by the Councilmanic Committee, as evidenced by an average attendance of less than one hundred persons seems remarkable. Those persons and interests opposed to various features of this particular contract finally united in an effort to prevent the adoption of any general contract during the period of the war. The Department believes that City Councils have taken a course which will remove the menace of a chaotic condition in the transit affairs of the City, and will insure the utmost progress possible under all conditions in the orderly development of the City. The contract authorized will secure to the City, at a just and reasonable cost, an operator for the City's System, unified service, and two great advantages, viz: joint control over the service to be rendered and over extensions of the Company's System, which are either absent or fanciful under the 1907 Contract.

Under the 1907 Contract any effective control by the City over service and over extensions to existing lines is absent, and control over construction of new lines only exists to the extent that the Company may fear competition. The Department believes the passage of this ordinance marks a distinct step in advance in the local control of a public utility corporation.

Proper credit for the successful development of this ordinance is due the Chairman and members of the Councilmanic Committee, to whom the ordinance was referred, for the careful consideration given to all the evidence presented and conflicting views expressed, and their evident willingness to afford all parties full opportunity to be heard. Acknowledgment is also made to Dr. William Draper Lewis and his able assistant, William A. Schnader, Esq., for their devoted interest, distinctive ability and conscientious care exercised in guarding the City's interest in the preparation of the contract. The grateful appreciation of the Department-- and of the citizens of Philadelphia--are due to James Collins Jones, Esq., Colonel Sheldon Potter, Mr. William Hancock, Mr. Charles L. Fluck, and other public-spirited citizens who, at great personal sacrifice, gave unsparingly of their time and abilities to the careful study of the terms of the contract, and after being convinced of the purpose and value of its provisions, publicly set forth their reasons for advocating its enactment.

As representatives of the Company have participated in the development of the instrument, no delay is anticipated in the ratification of its terms by the Company's stockholders, after which it must receive the approval of the Public Service Commission before becoming effective.





DIAGRAM No. 94

Market Street Subway

Use of Market Street Subway-Elevated Track East of Thirtieth Street by Darby Line

In connection with their report of March 9, 1917, upon the Lease Proposal of the Philadelphia Rapid Transit Company, Messrs. Ford, Bacon & Davis, Consulting Engineers, submitted an opinion as to whether the track capacity of the Market Street Line would be sufficient to accommodate the Darby Line until June 30, 1924, as had been contemplated (see Appendix A-3).

The opinion given was that the Darby Line can be operated in Market Street until June 30, 1924, and possibly until 1927, if it be deemed permissible to endure the resultant car loading during the later years of the period.

This opinion was based on their estimate that for the year 1924, 217 cars per hour will be required to accommodate the rush-hour traffic on the Market Street Elevated Line west of Thirtieth Street, and that 87 cars additional will be required on the Darby Elevated Line during the maximum hour. This would require the routing of 304 cars per hour on the Market Street Line between Thirtieth and Market Streets and Front and Arch Streets.

For the purposes of the calculation they assured that the required number of cars on the Market Street Line west of Thirtieth Street would be run in 29 trains per hour, requiring a somewhat longer headway than at the present time on that line. A headway of four minutes or fifteen trains per hour during the rush hour was assumed for the Darby Line.

The 29 trains operated on west Market Street and the 15 on the Darby Line would all use the Market Street Tracks between Thirtieth Street and Front Street, making a total of 44 trains per hour or an average headway of about one and one-third minutes (in the Market Street Subway) during the maximum hour of the day. Some of these trains would consist of eight cars, permitting the use of only the rear door of the front car and the front door of the rear car, as the subway stations will not accommodate in their entirety trains of more than seven cars.

One difficulty in the operation of the Frankford and Darby Lines through the Market Street Subway lies in the grade crossings which occur at the junction points at Thirtieth and Market Streets and at Front and Arch Streets.

At Thirtieth and Market Streets the west bound Darby trains will be required to cross the track of the east bound trains from west Market Street. During the rush hours of the day, at which time trains will be running at the rate of 29 per hour from west Market Street and 15 per hour from Darby, this will probably become the limiting point and one at which most careful operation will be required.

Another grade crossing will occur at Front and Arch Streets where during the hours of maximum operation 21 Frankford Bound trains cross the track of 23 trains bound west from Delaware Avenue into the Market Street Subway.



These grade crossings can be eliminated, however, by special construction at these points, but the expense involved would be large and their use only temporary, or until such time as the Delaware Avenue "spur" shall be completed and the Darby Line provided with another terminal.

Although it is the opinion of Ford, Bacon and Davis that the Darby Line can be brought into the central part of the City through the Market Street Subway at least until June, 1924, it is agreed by all that the Market Street Line does not have the capacity to afford a terminal for the Darby Line indefinitely, and that when this limit of capacity is reached, whether in 1924 or before or after that time, some other delivery facility must be provided for the Darby Line.

The Frankford Line, however, being in reality an extension of the present Market Street Line, does not have the effect of increasing the number of trains on the Market Street Line, but merely allows trains to be routed to Frankford which would otherwise have to be routed on Delaware Avenue.

The Market Street Subway affords delivery for the Frankford Line in the principal business section of the City, and the use of the Frankford Line makes possible the substitution of live mileage for a large part of the Market Street trains which now use the Delaware Avenue Extension.

The "through-routing" of the Frankford and Market Street Lines should be permanent, while the routing of the Darby Line through the Market Street Subway is merely a temporary expedient contingent upon the Market Street Subway having sufficient capacity for this line in addition to the trains from west Market Street.

In order to provide a terminal for the Darby Line after the capacity of the Market Street Line has been reached because of the operation of the additional Darby trains thereon (or to provide a connection between and terminal for both the Frankford and Darby Lines in case of independent operation), all of the early plans of the Department contemplated at some future time, a subway in Chestnut Street. In 1916, together with the other lines of the City's System, the construction of this line, and a loan of \$5,000,000 toward the construction thereof, was authorized.

If the lines are operated by the Philadelphia Rapid Transit Company the only reason for the construction of the Chestnut Street Subway is to provide a terminal in the business district for the Darby Line. If the Philadelphia Rapid Transit Company becomes the operator of the City's System, as now contemplated, the construction of this subway in Chestnut Street will be of no value whatever as a terminal for the Frankford Line.

The Darby Elevated Line itself based on early 1917 prices might have then been built for about \$5,000,000 and the Chestnut Street Subway as authorized would have cost on the same basis of prices at least \$10,000,000. To build a \$10,000,000 terminal to serve a \$5,000,000 line is obviously a questionable proposition.

In the plan for a modified rapid transit system suggested by the Director in March, 1916, it was proposed to connect the Darby Line to the City's System rather than to the Philadelphia Rapid Transit Company's System,





by a comparatively inexpensive elevated structure on Federal Street connecting with the South Broad Street Subway at Broad and Federal Streets.

This plan would not only provide an inexpensive terminal for the Darby Line, but would afford rapid service for a large and thickly populated section between Broad Street and the Schuylkill River.

#### RECOMMENDATIONS

1. The Contract which has been formulated for the operation by the Philadelphia Rapid Transit Company of the City's System of lines provides that the City shall purchase the cars and miscellaneous transit facilities necessary for the operation of the lines (see ordinance authorizing Contract shown as Appendix B-3).

The people on May 16, 1916, by their votes authorized the corporate authorities of the City to borrow money in the gross amount of \$57,100,000, to be used, applied and expended toward the construction and improvement of subways, tunnels, railways, elevated railways and other transit facilities, including the acquisition of real estate therefor, and the payment of certain interest and sinking fund charges.

The language used in this authorization follows closely the language of the Amendment to Section 8 of Article IX of the Constitution of the State, which became effective in 1915, under the terms of which the City is proceeding. The City Solicitor, in a letter to the City Controller (see page 62), has given his opinion that the appropriation and apportionment of this money for the "construction and improvement" of specific lines does not include authority to purchase the cars and other transit facilities commonly referred to as "equipment." The total cost of that portion of the operating equipment necessary for the initial operation of the First Operating Section of each line of the City's System, as the City is obligated to provide under the authorized Contract with the Philadelphia Rapid Transit Company, was estimated, early in 1917, to amount to approximately \$12,000,000, increasing as the system was completed and developed to \$30,000,000 by 1930. Under prevailing conditions, it is impossible to estimate the amount that will ultimately be required for this purpose. For the completion of the Frankford Line funds should be made available as soon as possible, that the necessary cars and other equipment may be ordered, and if it be decided that money now appropriated for these lines cannot be used for cars or other operating facilities, an item should be included in the next loan authorized by the people sufficient in amount to meet the obligations of the City under the Contract for several years in the future.

2. For reasons as set forth in this report, I recommend that City Councils amend the loan ordinance of June 29, 1916 (coupled with the appropriation ordinance of July 20, 1916), and provide for the payment out of current revenue of all interest and sinking fund charges upon fifty-year loans, issued for Transit Development; or, at least, provide as a limit that not more than ten (10) per cent. of the amount borrowed shall be reserved or used for interest payments, all sinking fund payments and all interest payments in excess of said ten (10) per cent. to be made from current funds.



3. For the reasons as set forth in this report I recommend that the City should modify the provisions of the ordinance of July 5, 1870, so that the proportional size of the surety bonds to be furnished by contractors shall be a graduated and not a fixed percentage of the amount involved in the execution of a contract as at present.

The present requirement that a bond shall equal fifty (50) per cent. of the limit of the contract may well be continued in force as applicable to small contracts, and the percentage be gradually reduced as the amount involved in the contract increases.

4. In order that the City may carry out its plans for Transit Development with advantage to itself, it is important that legislation be enacted giving the City the power of excess condemnation of real estate and the right to resell property condemned for construction purposes or for entrances or right-of-way, subject to such easement as the City may desire to retain. I recommend that this phase of the City's undertaking be investigated and proper enabling legislation be prepared and submitted to the 1919 session of the Legislature.

5. In order that the City may be enabled to carry to completion this work upon which it has embarked, laws and ordinances now existing, which limit the Department and the City to definite contract forms and procedure, should be so amended as to permit work to be done, at least during the period of the war and when deemed to the City's advantage, by direct employment of labor under the direction of the Department or by some form of percentage contract.

The uncertainty now existing, as to labor and material as a result of the war makes this recommendation necessary. Reliable and conservative contractors are becoming exceedingly loath to assume the business risks involved under the form of contract now authorized, except at prices regarded as almost prohibitive. The initiation by the Government at Washington of a percentage form of contract for much of its construction work under the War Department has set a precedent to which the City must give serious consideration if work on the City's need improvements is to make real progress.

6. Finally, I recommend that, as applied to draftsmen and technical employees of the engineering force, the Civil Service restrictions as to Philadelphia residence be waived, in order that a wider field may be opened from which such talent may be obtained. Great difficulty was experienced during the year in obtaining qualified men, and unless the entire country can be drawn upon the prospects for next year are not encouraging, as a large percentage of such men, being within the draft age, are subject to call by the War Department.

Respectfully submitted,

(Signed) William S. Twining  
Director.





European War Hindered Prosecution of all the Work Bids Entered  
for 26 Contracts -- Only Nine Placed

The abnormal industrial situation throughout the country resulting from the war in Europe, even before the entry of the United States into the conflict, greatly increased the cost of construction materials and created a great scarcity of labor, which caused serious embarrassment to our contractors and hindered the prosecution of all the work. After this country entered the war conditions became more acute, so that it became difficult to place any more construction under contract. At six of our lettings there was only one bid, and at one there was not a single bid. At eight lettings there were bids the work could not be awarded because all the figures bid were higher than the department's estimates. In all, 26 contracts were advertised for bids and only 9 were placed, 4 of the remainder being awarded, but not yet entered into.

In Progress, or Under Temporary Suspension, Construction Work  
Under Contract at Beginning of Year

The construction work in progress or under temporary suspension at the beginning of the year consisted of the reconstruction of the sewer in Thompson Street, Contract 16; the two sections of subway from South Penn Square to Filbert Street under City Hall, Contracts 101 and 103; the foundations for columns of the Frankford Elevated in Frankford, Contract 528; and the steel superstructure of the Frankford Elevated, Contracts 518 and 519.

Construction Work Placed Under Contract and Work Commenced During  
the Year

During the year contracts were placed for and work commenced on the Arch Street and the Locust Street sections of the Delivery Look Subway, Nos. 201 and 203, respectively; the column foundations from Unity to Dyre Streets in Frankford, No. 503; the concrete deck, track and footway floor of the Frankford Elevated, No. 528; and four of the station buildings for the Elevated, Contracts 533 at Orthodox-Margaret Streets, Frankford, and 534 at Ruan-Church Streets, Frankford. Awards were made for the Eighth Street section, Contract 202, of the Delivery Look, and for three sections of the Broad Street Subway -- one south of South Penn Square, Contract 204, and two north of Filbert Street, Contracts 103 and 104, but the bidder for the Eighth Street section, Contract 202, and the bidder for the Broad Street section north of Buttonwood Street, Contract 104, declined to accept the award of their contracts because during the delay of several months in the award -- which was entailed by the long wait for favorable action by the State Public Service Commissions -- the market prices of material had later had greatly advanced. The bidder to whom the two Broad Street sections, Contracts 103 and 204, were awarded accepted the contracts, but their execution is still in abeyance.

Construction Work Completed and Settled for  
During the Year

The contracts completed and settled for during the year were the sewer in Ninth Street from Market Street to Arch Street, Contract 13; the foundations for columns of the Frankford Elevated, between Unity and Dyre Streets, Contract



503; and the two contracts for steel superstructure, contracts 518 and 519. The sewer had been completed in the previous year and the street temporarily repaved, but the permanent repaving, which was included in the contract obligation, had been deferred to permit thorough settlement of the refilling.

Suspension During Winter of Construction Work on  
Frankford Elevated Concrete Deck and  
Station Buildings

Construction work on the concrete deck of the Frankford Elevated and on the station buildings in Frankford was suspended on the approach of snow and freezing weather to prevent unavoidable injury to masonry--the elevated floor particularly being entirely exposed and unprotectable against frost. During the idle season the inspectors are laid off and the daily work against the contracts are suspended. The work is expected to be resumed about April 1, 1918. This suspension should not delay the completion for operation of the railway, because the construction of the section at the south end from Callowhill Street to Arch Street connection to the Market Street Subway incline, and also the terminal station near Bridge Street with connection to the car storage yard there--all of which is, of course, necessary to operation--will consume a long time, and cannot be placed under contract until after the consummation of the operating contract and lease.

Frankford Elevated Work Remaining to be Contracted for to  
Complete an Operating Section to Bridge Street

The work remaining to be contracted for on the Frankford Elevated to complete an operating section to Bridge Street consists of the following:

Column foundations and steel superstructure of the sections south of Callowhill Street and north of Dyre Street, about 3,415 lineal feet--nearly 10 per cent. of the line from Arch Street to Bridge Street.

Concrete track floor and walkways and drainage spouts for these sections south of Callowhill Street and north of Dyre Street.

Painting of the whole of the steel work.

Reinforced concrete structure of connection near Front and Arch Streets to the Market Street Subway incline.

Steel elevated connection to car storage yard at Bridge Street, and grading of yard.

Station buildings at Somerset Street, Huntingdon Street, York-Dauphin Streets, Berks Street, Birard Avenue, and Fairmount Avenue-Green Street.





Concrete platforms for all stations, canopy shelters over them, and bridge passages connecting the platforms to the station buildings.

Track, third rail and signal systems throughout.

The operating company is expected to furnish the station equipment, sub-stations, cables, car repair shops, etc.

Contract 503--Edwin H. Vare, Contractor. Foundation in Frankford Avenue, from Unity to Dyre Street. Completed in 1917.

Contract 518--McClintic-Marshall Company, Contractors. Steel superstructure and appurtenant work in Front Street, Kensington Avenue and Frankford Avenue, from south of Girard Avenue on Front Street to Unity Street on Frankford Avenue. Completed in 1917.

Contract 519--American Bridge Company, Contractors. Steel superstructure and appurtenant work in Frankford Avenue, from Unity to Dyre Street. Completed in 1917.

Contract 520--McClintic-Marshall Company, Contractors. Steel work for Huntingdon Street Station. Not completed in 1917.

The only work done on this contract was the rolling of part of the steel necessary.

Contract 528--Keystone State Construction Company, Contractors. Track floor, floor drains and footwalks in Front Street, Kensington and Frankford Avenues, from Callowhill to Dyre Street. Not completed in 1917.

Contract 533--Standard Construction Company, Contractors. Station Buildings on Frankford Avenue at Orthodox-Margaret Streets. Not completed in 1917.

The work on this contract consists of tearing down the existing buildings on the site and shoring up adjoining properties. Work was suspended during the winter on account of cold weather.

Contract 534--Standard Construction Company, Contractors. Station buildings on Frankford Avenue at Church-Ruan Streets. Not completed in 1917.

All the old buildings on the site of this contract have been removed and the adjoining properties strengthened. Foundations were being laid when cold weather set in, and work was suspended for the winter.

Contract 539--S. Faith Company, Inc., Contractors. Plumbing installation buildings at Orthodox-Margaret Streets and Ruan-Church Streets. No work commenced on this contract.

Contract 540--J. F. Buchanan & Company, Contractors. Electrical installations in station buildings at Orthodox-Margaret Streets and Ruan-Church Streets. No work done on this contract.



## SUBWAY CONSTRUCTION

Construction operations on the Subway System during the year consisted of:

- 1--The building of the City Hall Station, Broad Street subway, Contracts Nos. 101 and 102.
- 2--The starting of work on two sections of the Delivery Loop viz.: Arch Street, between Eighth and Broad Streets, Contract No. 201; and Locust Street, between Eighth and Broad Streets, Contract No. 203.
- 3--The continuance of the work of reconstructing the sewer in Thompson Street, from Seventh to Broad Street, Contract No. 16.

The rate of progress accomplished on the above contracts was, on the whole below normal, the effect of the war being materially felt in the matter of the supply and efficiency of the labor obtainable, and also in the difficulty experienced in obtaining the needed materials, due to the Government's demands and delayed deliveries on account of transportation congestion and embargoes. The City Hall work was chiefly affected by delay in the delivery of the structural steel, but notwithstanding this, a fair rate of progress was maintained throughout. The Loop and sewer contracts were considerably handicapped by the shortage and shifting of labor.

The Arch and Locust Streets sections were started late in the year and the work to date has been confined principally to the installation of the contractor's plant, the decking over of portions of the streets, the excavation in trench, and the underpinning of buildings.

### Construction of City Hall Station--(Contracts Nos. 101 and 102)

Work in connection with the building of the City Hall Station of the Broad Street Subway system progressed steadily during the year, with an average force of 400 men engaged thereon.

The construction of the southern end of the station, extending beneath involving the underpinning of the existing Philadelphia Rapid Transit Company's Subway in South Penn Square, is approximately 90 per cent completed, and the latter structure is now permanently supported on the steel work and walls of the new system. This feature of the undertaking was successfully accomplished without interference with the operating schedule of the trains, except for the daily discontinuance of the subway in the early morning hours during the period of construction. The operation of underpinning the existing subway, necessitating the removal of a portion of its supporting steel work and its replacement with new steel columns and girders, and the ultimate transference of its support to the walls of the underlying new subway, was executed with but negligible settlement, and with no evidence of physical disturbance or damage to the old work.

Beneath the City Hall the dual operation of building the subway and concurrently underpinning and transferring the building to its new supports is passing through the various stages involved in the undertaking.





In general, the scope of the various contracts included in the construction program is as follows:

- (1) Foundations of City Hall rebuilt.
- (2) Subway roof girders (concrete and steel) built or placed in position.
- (3) Subway walls built--roof girders underpinned and supported thereon.

These three operations are now in progress, to be followed subsequently by:

- (4) Removal of core.
- (5) Construction of floors and platforms.

PROGRESS ON SUBWAY, ELEVATED AND MISCELLANEOUS JOBS IN THE  
CONTRACTS IN FORCE DURING THE YEAR

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Broad Street Subway

City Hall Station--South Section

Contract No. 101

The details regarding the award of this contract are given on page 120 of the 1915 annual report. Work under this contract was begun September 13, 1915, and to December 31, 1915, was about  $4\frac{1}{2}$  per cent. completed, being about 15 per cent. completed to December 31, 1916, and about 51 per cent. completed to December 31, 1917. Work under this contract is still in progress.

Broad Street Subway

City Hall Station--North Section

Contract No. 102

The details regarding the award of this contract are given on page 54 of the 1916 annual report. Work under this contract was begun December 19, 1916, and is now in progress, being about 36 per cent. completed to December 31, 1917.

Broad Street Subway

Contracts Nos. 103, 104 and 204

Under authority of an ordinance of City Councils approved July 20, 1916, bids were received on April 3, 1917, covering the construction of three sections of the Broad Street Subway and Stations under contracts, as follows:

Contract No. 103--Subway and Station in Broad Street, from south of Filbert Street to Buttonwood Street.



Contract No. 104--Subway and Stations in Broad Street, from Buttonwood Street to north of Stiles Street.

Contract No. 204--Subway and Stations in Broad Street, from South Street to South Street.

The bidders and total amount of each bid were as follows:

Name of bidder	Total amount of bid		
	Contract No. 103	Contract No. 104	Contract No. 204
Keystone State Construction Company	\$2 815 240 00	\$2 919 270 00	\$3 336 400 00
Philadelphia Subway Construction Company	2 846 240 00	2 885 941 00	3 495 018 00
Smith, Hauser & MacIsaac, Inc.	3 090 103 00	3 171 505 00	3 491 912 50
Underpinning and Foundation Company	3 292 767 50	3 186 062 50	3 861 435 00
E. E. Smith Contracting Company	--	3 273 550 00	--
Dock Contractor Company	--	3 461 628 00	--

The advertisement for bids for these contracts stipulated that awards were subject to the receipt of a certificate of public convenience from the Public Service Commission, application for same having been filed with the Commission December 29, 1916. Upon receipt of the certificate, which was issued July 23, 1917, the contracts for this work were awarded on July 25, 1917, to the low bidders as follows:

Recapitulation--Low Bids

Contract No.	Name of low bidder	Total amount of bid
103	Keystone State Construction Company	\$2 815 490 00
104	Philadelphia Subway Construction Company	2 885 941 00
204	Keystone State Construction Company	3 336 400 00
Total amount of low bids for the three contracts		\$9 037 831 00

The Keystone State Construction Company, to whom the two contracts, Nos. 103 and 204, were awarded, accepted the contracts, but their execution is still in abeyance.

On account of the delay in award, as above explained, the Philadelphia Subway Construction Company declined to accept the award of Contract No. 104, returning same unexecuted on January 4, 1918.

Delivery Loop Subway  
Contracts Nos. 201, 202 and 203





Under authority of an ordinance of City Councils approved July 20, 1916, bids were received on February 6, 1917, covering the construction of the Delivery Loop Subway and Stations under contracts as follows:

Contract No. 201--Subway and Stations in Arch Street, from the west side of Broad Street to the west side of Eighth Street.

Contract No. 202--Subway and Station in Eighth Street, from Arch Street to Locust Street.

Contract No. 203--Subway and Stations in Locust Street, from west of Eighth Street to the east side of Broad Street.

The bidders and total amount of each bid were as follows:

	Total amount of bid		
	Contract No. 201	Contract No. 202	Contract No. 203
Keystone State Construction Company	\$1 575 760 00	\$2 494 142 00	\$1 713 715 00
E. E. Smith Contracting Company	1 607 315 00	.....	1 755 095 50
Smith, Hauser & MacIsaac, Inc.	1 734 116 00	2 420 303 00	1 895 034 00
U			
Underpinning and Foundation Company	1 900 617 50	2 942 717 50	2 110 152 50
Philadelphia Subway Construction Co.	2 023 115 00	2 763 700 00	2 160 877 00
Rodgers & Hagerty, Inc.	2 402 305 00	3 421 720 00	2 316 592 50

The advertisement for bids for these contracts stipulated that awards were subject to the receipt of a certificate of public convenience from the Public Service Commission, application for same having been filed with the Commission December 29, 1916. Upon receipt of the certificate, which was issued July 23, 1917, the contracts for this work were awarded on July 25, 1917, to the low bidders, as follows:

Recapitulation -- Low Bids

Contract No.	Name of low bidder	Total amount of bid
201	Keystone State Construction Company	\$1 575 760 00
202	Smith, Hauser and MacIsaac, Inc.	2 420 303 00
203	Keystone State Construction Company	1 713 715 00
Total amount of low bids for the three contracts		\$5 709 378 00

Work under the two Contracts Nos. 201 and 203 was begun October 1, 1917, and is now in progress, over one per cent- of the work under Contract No. 201 and about two per cent. of the work under Contract No. 203 being completed to December 31st.



On account of the delay in award, as above explained, the contracting firm, Smith, Hauser & MacIsaac, Inc., declined to accept the award of Contract No. 202, returning same unexecuted on November 5, 1917.

#### Foundations for Frankford Elevated Railway

In Front Street, Kensington and Frankford Avenues, from 1118 to 1111 to Unity Street

Contract No. 501

The details regarding the award of this contract are given on page 121 of the 1915 annual report. Work under this contract was begun September 13, 1915, and to December 31, 1915, was about 30 per cent. completed, regular work being completed during 1916, but pending adjustment upon extra work the final payment was withheld until January 15, 1917.

In Frankford Avenue, from Unity to Dyre Street

Contract No. 502

The details regarding the opening of bids and delay in making award for this contract are given on page 125 of the 1915 annual report, and the details regarding the delay and final award of contract are given on page 51 of the 1916 annual report. The contract was annulled on April 5, 1917, and the work readvertised as Contract No. 503. (See Engineering Division report for this year.)

In Frankford Avenue, from Unity to Dyre Street

Contract No. 503  
(Superseding Contract No. 502)

The bidder and total amount of bid received on May 1, 1917, was:

Name of Bidder	Total Amount of Bid
Edwin H. Vare	\$47,090.00

Contract for this work was awarded on May 1, 1917, and was completed November 23, 1917.

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#### Frankford Elevated Superstructure

In Front Street, Kensington and Frankford Avenues, from South of Girard Avenue to Unity Street

Contract No. 513

The details regarding the award of this contract are given on page 121 of the 1915 annual report. Work on the steel superstructure was proceeding at the mills and shops during 1915, but the erection was not commenced until May 1, 1916, and to December 31, 1916, was over 62 per cent. completed, being entirely completed November 7, 1917.





In Frankford Avenue, from Unity to Dyre Street

Contract No. 519

The details regarding the opening of bids for and delay in making award of this contract are given on page 125 of the 1915 annual report, and the details regarding the delay and final award of contract are given on page 53 of the 1916 annual report. Work under this contract was begun June 5, 1916, and to December 31, 1916, was over 68 per cent. completed, and entirely completed December 22, 1917.

Additional Steel Superstructure for Station Platform  
in Kensington Avenue at Huntingdon Street

Contract No. 520

The bidder and total amount of bid opened May 15, 1917, was:

Name of Bidder	Total Amount of Bid
McClintic-Marshall Company	\$59,923.00

Contract for this work was awarded on May 16, 1917. Mill orders were placed promptly for the steel, but work has not been started on it as yet, due to the war embargo on steel mills.

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Frankford Elevated Railway

Contract No. 528

Under authority of ordinances of City Councils approved July 2, 1915, and July 20, 1916, bids were received for construction of the Frankford Elevated Railway under contracts as follows:

Contract No. 528--Track Floor, Floor Drains and Foot Walks in Front Street, Kensington and Frankford Avenue, from Callowhill to Dyre Street. The bidder and total amount of bid received on July 24, 1917, was:

Name of Bidder	Total Amount of Bid
Keystone State Construction Company	\$909,400.00

Contract for this work was awarded on July 26, 1917. Work was begun on September 28, 1917, and on account of inclement winter weather was temporarily suspended after November 28th, being about five per cent. completed to that date.

Contracts Nos. 533 and 534

Contract No. 533--Station Buildings on Frankford Avenue at Orthodox and Margaret Streets.

Contract No. 534--Station Buildings on Frankford Avenue at Ruan and Church Streets.



The bidders and total amount of each bid received on October 22, 1917, were as follows:

	Total amount of bid	
	Contract No. 533	Contract No. 534
Standard Construction Company	\$46 875 00	48 575 00
Mitchell Brothers	52 214 00	53 114 00
William R. Dougherty (bid incomplete)	53 700 00	54 800 00
F. W. VanLoon	56 750 00	55 536 00
Ketcham & McQuade	57 866 00	59 237 00

Contracts for this work were awarded on October 31, 1917, to the low bidder, as follows:

Recapitulation--Low Bids

Contract No.	Name of low bidder	Total amount of bid
533	Standard Construction Company	\$46 875 00
534	Standard Construction Company	48 575 00
Total amount of low bids for the two contracts		\$95 450 00

Work was begun under Contract No. 534 on November 19th, and under Contract No. 533 on November 26th, and on account of inclement winter weather work was temporarily suspended after December 15th, over one per cent. of the work under Contract No. 533 and about three per cent. of the work under Contract No. 534 being completed to that date.

Contracts Nos. 535 and 536

Contract No. 535--Station Buildings on Kensington Avenue at the northwest and southeast corners of Torresdale Avenue intersection.

Contract No. 536--Station Buildings on Kensington Avenue at the corner of Tioga and K Streets, and the southeast corner of Tioga Street intersection.

The bidders and total amount of each bid received on December 27, 1917, were as follows:





Name of bidder	Total amount of bid	
	Contract No. 535	Contract No. 536
Mitchell Brothers	55 570 00	57 570 00
Standard Construction Company	58 300 00	74 490 00
Ketcham & McQuade	59 636 00	65 000 00
James Connor	60 500 00	--
F. W. Van Loon	62 968 00	79 510 50
W. W. Anstine & Company (bid incomplete)	59 500 00	65 000 00

Contracts for this work were awarded on January 7, 1918, to the low bidder, as follows:

Reconciliation--Low bids

Contract No.	Name of bidder	Total amount of bid
535	Mitchell Brothers	\$ 55 570 00
536	Mitchell Brothers	57 570 00
Total amount of low bids for the two contracts		\$113 140 00

Contract No. 539--Plumbing in Station Buildings at Orthodox-Margaret and Ruan-Church Streets.

The bidders and total amount of each bid received on December 4, 1917, were as follows:

Names of Bidder	Total Amount of Bid
S. Faith Company, Inc.	\$ 5,000.00
Bulman Brothers	5,500.00
Walters, Purks & Mellon	5,565.00
H. Connolly	6,866.00

Contract for this work was awarded on December 4, 1917, to S. Faith Company, Inc. Construction work on the station buildings has not as yet progressed far enough to permit of the commencement of work under this plumbing contract.

Contract No. 540

Contract No. 540--Electrical Installations in Station Buildings at Orthodox-Margaret and Ruan-Church Streets.



The bidders and total amount of each bid received on December 4, 1917, were as follows:

Name of Bidder	Total Amount
J. F. Buchanan & Company	\$5,332.00
Electro Construction Company	5,774.00
Walker & Kepler	6,413.50

Contract for this work was awarded on December 4, 1917, to J. F. Buchanan & Company. Construction work on the station buildings has not as yet progressed far enough to permit of the commencement of work under this electrical installation contract.

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#### Sewers

##### Sewer in Ninth Street

##### Contract No. 13

The details regarding the award of this contract are given on page 118 of the 1915 annual report. Work under this contract was begun March 22, 1915, and was completed during that year, with the exception of the final paving, which was completed June 25, 1917.

##### Sewer in Thompson Street

##### Contract No. 16

The details regarding the award of this contract are given on page 54 of the 1916 annual report. Work under this contract was begun November 20, 1916, and is now in progress, being about two per cent. completed to December 31, 1916, and 31 per cent. completed to December 31, 1917.

RECORD OF APPLICATIONS MADE TO, HEARINGS HELD BEFORE, AND DECISIONS ISSUED BY, THE PUBLIC SERVICE COMMISSION OF THE COMMONWEALTH OF PENNSYLVANIA

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#### Four Applications

During the year three applications were made by the City of Philadelphia to the Public Service Commission of the Commonwealth of Pennsylvania for certificates of public convenience, evidencing the Commission's approval of construction, as follows:

February 7, 1917 (A.--945, 1917):

Elevated railway from Thirtieth and Market Streets, via Thirtieth





Street, private right-of-way, Grays Ferry Avenue to the City limits, Darby.

June 28, 1917 (A.--1381, 1917):

Subway railway to be located mainly under Chestnut Street, connection between the elevated railways leading to Philadelphia and to Darby, with an elevated railway connection (including bridge over the Schuylkill River) to the Darby Elevated Railway in Thirtieth Street, and an elevated railway connection to the Frankford Elevated Railway at Front and Arch Streets.

(A.--1382, 1917):

Continuation of the Frankford Elevated Railway, from north of Callowhill Street southward over Front Street to Arch Street.

Application was made for a certificate of public convenience evidencing the Commission's approval of a contract dated July 10, 1917, as follows:

August 22, 1917 (M. C.-689, 1917):

Between the City of Philadelphia and The Pennsylvania Railroad Company, lessee, granting the City the right to construct and maintain, in connection with its Frankford Elevated Railway, a passenger station on and over land and property of the railroad company on the easterly side of Front Street, opposite Berks Street.

Copies of the above-entitled applications are shown as Appendix G.

#### Six Hearings

Six hearings were held before the Public Service Commission of the Commonwealth of Pennsylvania in its rooms in the Capitol at Harrisburg on the following entitled applications:

January 24, 1917 (A.-878, 1916):

Continuation of the Frankford Elevated Railway, from south of Dyre Street, Frankford, northward over Frankford Avenue to Rhawn Street, Holmesburg.

(A.-879, 1916):

Subway railway in Broad, Arch, Eighth and Locust Streets, also the Parkway, and an elevated railway in North Twenty-ninth Street.

February 27, 1917 (A-945, 1917):

Elevated railway from Thirtieth and Market Streets, via Thirtieth Street, private right-of-way, Grays Ferry Avenue and Woodland Avenue to City limits, Darby.



July 18, 1917 (A.-1381, 1917):

Subway railway to be located mainly under Chestnut Street as a connection between the elevated railways leading to Frankford and to Darby, with an elevated railway connection (including bridge over the Schuylkill River) to the Darby Elevated Railway in Thirtieth Street and an elevated railway connection to the Frankford Elevated Railway at Front and Arch Streets.

(A.-1382, 1917):

Continuation of the Frankford Elevated Railway, from north of Callowhill Street southward over Front Street to Arch Street.

September 20, 1917 (M. C.-689, 1917):

Contract dated July 10, 1917, between the City of Philadelphia and the Pennsylvania Railroad Company, lessee, granting the City the right to construct and maintain, in connection with its Frankford Elevated Railway, a passenger station on and over land and property of the railroad company on the easterly side of Front Street, opposite Berks Street.

#### Three Rehearings

Three rehearings were held before the Public Service Commission of the Commonwealth of Pennsylvania in the Select Council Chamber, City Hall, Philadelphia, on the following entitled applications:

January 19, 1917 (A.-784, 1916):

Double-track surface line, from the intersection of Frankford and Oxford Avenues through the Thirty-fifth Ward to the "City Farms."

February 14, 1917 (A.-878, 1916):

Continuation of the Frankford Elevated Railway, from south of Dyre Street, Frankford, northward over Frankford Avenue to Rhawn Street, Holmesburg.

(A.-879, 1916):

Subway railway in Broad, Arch, Eight and Locust Streets, also The Parkway, and an elevated railway in North Twenty-ninth Street.

#### Seven Certificates Issued

The Public Service Commission of the Commonwealth of Pennsylvania after an investigation and hearing had on the respective applications (by its report and order made and entered) found, determined and ordered that certificates of public convenience be issued, evidencing the Commission's approval of the construction as petitioned in the six following entitled applications:





April 4, 1917 (A.-878, 1916):

Continuation of the Frankford Elevated Railway, from south of Dyre Street, Frankford, northward over Frankford Avenue to Rhawn Street, Holmesburg.

July 23, 1917 (A.-784, 1916):

Double-track surface line, from the intersection of Frankford and Oxford Avenues through the Thirty-fifth Ward to the "City Farms."

(A.-879, 1916):

Subway railway in Broad, Arch, Eighth and Locust Streets, also The Parkway, and an elevated Railway in North Twenty-ninth Street.

(A.-945, 1917):

Elevated railway from Thirtieth and Market Streets, via Thirtieth Street, private right-of-way, Grays Ferry Avenue and Woodland Avenue to City limits, Darby).

(A.-1381, 1917)

Subway railway to be located mainly under Chestnut Street as a connection between the elevated railways leading to Frankford and to Darby, with an elevated railway connection (including bridge over the Schuylkill River) to the Darby Elevated Railway in Thirtieth Street, and an elevated railway connection to the Frankford Elevated Railway at Front and Arch Streets.

(A.-1382, 1917):

Continuation of the Frankford Elevated Railway, from north of Callowhill Street southward over Front Street to Arch Street.

Also a certificate of public convenience was issued evidencing the Commission's approval of a contract dated July 10, 1917, as follows: September 25, 1917 (M. C.--689, 1917):

Between the City of Philadelphia and The Pennsylvania Railroad Company, lessee, granting the City the right to construct and maintain, in connection with its Frankford Elevated Railway, a passenger station on and over land and property of the railroad company on the easterly side of Front Street, Opposite Berks Street.

Copies of the certificates and the reports and orders issued in the matter of the applications as above entitled are shown as Appendix G.



REPORT

On January 24, 1917, the Philadelphia Rapid Transit Company submitted the Second Draft of an Ordinance covering a proposal of the company to execute a Contract and Lease of the City's system of transit facilities - "If, As and when Constructed". That draft is the subject of this report.

The Department's study of the company's proposal shows it to be wrong in principle, unfair and costly to the City, and very faulty in detail. Shorn of complex technicalities, the proposal aims not to lease the City's property to the company, but to lease the company's property to the City at a fixed rental of \$1,500,000 per year, the company remaining in charge of operation without a proper degree of responsibility. This rental, carrying with it an insurance of all the underlying rentals and obligations of the Philadelphia street railway system, is protected by the reversion to the company's treasury of about \$800,000 per year now paid to the City, and is positively guaranteed by an automatic charge for transfers. Thus for fifty years the company would be relieved of all the risks inherent in the street railway business; the City would be called on to supply the greater part of the fresh capital needed to keep up with the growth of population; and the City would be saddled with the risks of the business, insofar as return on its own investment is concerned.

The company, being a monopoly, is under obligation to provide adequate local transportation service. Thus it faces, on the one hand, the future demand for construction funds under the risks usual to the business, or, on the other hand, competition. In the face of these alternatives it must expect to make concessions, and this is the co-operation to which the City is entitled.

There is nothing to prevent the city from leasing its lines to an independent operator, in which case the financial returns to the City would be greater than the City can expect to obtain by any arrangement with the Philadelphia Rapid Transit Company. The City is aiming, however, to obtain the best possible transportation service for its citizens, and as combined operation of high-speed and surface lines is necessary to that end, the City on its part can afford to make concessions.

The principal concession purported to be made by the company is that it is accepting a fixed rental of \$1,500,000 per year, whereas in the current fiscal year its earnings are estimated to be over \$2,500,000. The City should not treat this as a concession until it has confirmed the company's statement of earnings by accepted standards of service and maintenance. Moreover, caution should be exercised in basing rental on results of this year of unexampled activity in all lines of business.

In the proposal the City's interests are subordinated to the company's interests in every particular. Although the City would be supplying 75 per cent. of the capital required for the development, extraordinary protection and preference are demanded for that part supplied by the company. Although the City is asked to hold the company harmless from every contingency of the future, the City is given no direct and effective control of the management of service.





The preferential payment asked by the company is based in the main upon an entirely different principle from that of the New York preferentials. The proposed Philadelphia preferential is mainly for the purpose of protecting the company against loss in net income. The New York preferentials were devised to make the pooling of revenue practicable and to establish the company's credit so that about 50 per cent. of the new capital could be obtained through the companies. The companies are protected in a very little degree against loss by reason of traffic diverted, although the bulk of the loss will fall on the contracting parties through subsidiaries.

The estimates of financial results of operation made by the Consulting Engineers show that there will be deficits of from \$4,000,000 to \$5,000,000 per year to the City in the earlier years of the contract. While the City will be greaning under this load the company will be carrying no part of it, its income being securely protected whatever the contingency. It will be quite as hard for the City to carry this deficit by additional taxes as it would be for the company to carry part of it by foregoing a portion of its dividends. Although the company's credit would be strengthened by the proposed contract almost to the degree of guaranty by the City, the company asks such latitude in securing new capital that the fixed charges, which are deducted before the City's share, might be made far greater than the money market may warrant. The City might suffer to the extent of \$30000,000 from this cause during the term of the contract.

It goes without saying that an instrument of this character covering a period of fifty years, affecting the comfort and welfare of every citizen involving the expenditure of over \$200,000,000 and the collection and disbursement of over \$2,000,000,000, should be drawn in unmistakable terms safely guarding the interests of both parties. The form of the proposal submitted contains many important clauses which leave the City open to large losses, or which are uncertain of interpretation.

#### PRINCIPAL OBJECTIONS TO THE COMPANY'S PROPOSAL

1. The Company seeks to avoid all the risks incident to the street railway business and to make the City bear the full brunt of such risks in so far as expected to return on the City's capital investment is concerned.

The proposal is drawn wholly for the protection of the past and future financing of the company. The City's financial interest is ignored to a large extent, and made to appear wholly contingent and insignificant as compared with the company's. Under its terms, the City would assume 100 per cent. of the risk and burden of future expansion of the system, which is manifestly unfair. The real effect of this plan will be to guarantee not only the company's dividend of \$1,500,000 per year, but the company's management, wages of employees, all interest charges and sinking funds on borrowed money, past or future, and most important of all to again confirm the excessive rentals paid to underlying companies that hold the original franchises, either direct or leasehold. For to guarantee the dividend must, of necessity, guarantee everything affecting the earnings from which it is paid.



The City is opposed to any proposition to pay the Philadelphia Rapid Transit Company a fixed and cumulative guarantee dividend without recognition by the company of its obligations to the City for financing the future capital requirements of the system. The City's capital is as good as the company's, and should be so treated in the application of the net earnings.

The greatest objection is in the guarantee itself, not in the amount. The City may pay the operator whatever fee for services is considered fair and proper, and this can be paid in a legal manner without guaranteeing the company's pyramid of fixed charges.

2. The amount of the dividend or guarantee is based on earnings which are not well established.

The surplus income of the company corresponding to the amount of the proposed guarantee has been as follows, according to the reports of the company:

Years Ending June 30

Dollars.

1903	405,889	
1904	220,849	
1905	108,210	
1906	303,997	
1907	364,048	(Deficit)
1908	92,049	"
1909	220,554	"
1910	1,329,723	"
1911	415,560	"
1912	150,490	"
1913	509,583	
1914	310,230	
1915	221,705	
1916	1,672,704	

From this statement it will be seen that the income varies greatly, and that now the company is on a high wave of prosperity, whereas two years ago it was barely able to meet its obligations.

In considering these figures, it must be borne in mind that surplus income is vitally dependent upon standards of maintenance and service. Maintenance comprises ordinary repairs and periodical replacements. On a large part of a street railway property replacements are not made uniformly from year to year and it is necessary to set aside out of earnings sufficient funds to make such replacements, these funds representing the accrued depreciation. On account of much uncertainty as to the life of street railway apparatus, the amount of the necessary annual charges to depreciation reserve funds is largely a matter of estimate. Much consideration and investigation has been given to this subject, however, by commissions and operating officials, so that an approximate standard may be obtained from the practice of other companies. On the Brooklyn surface lines, which are comparable with the Philadelphia System, the average maintenance and depreciation charge for the past five years has been 18.2 per cent. of the gross revenue; on the Boston Elevated Railway 17 percent, and on the Chicago railway 16 per cent. The Philadelphia Rapid Transit Company sets aside only







15 percent. for this purpose, and this includes the payment to the City for maintenance of paving between curbs. Deducting this amount, makes the Philadelphia allowance about 13.5 per cent. on the same basis for Brooklyn, Boston and Chicago. If the same allowance were made by the Philadelphia Rapid Transit Company, as in these other cities the net income would be reduced by from \$750,000 to \$1,000,000.

The acceptability of standard of service is a question that requires careful investigation. The expenses of operation, and, therefore, the net income, vary naturally with the car mileage and number of cars operated therefore, if the service be deficient in any particular, the net income as reported will be higher than it should be. The following comparison of earnings and car mileage operated bears upon this question:

INCREASE IN SERVICE COMPARED WITH INCREASE IN TRAFFIC

Years	Gross Earnings.	Per cent Passenger Increase over 1912	Car Miles Operated.	Per Cent. Increase over 1912
1912 -----	\$22,700,692	-	\$ 82,868,950	-
1913 -----	23,927,179	5.40%	82,941,432	0.09%
1914 -----	24,255,813	6.85%	82,911,808	0.05%
1915 -----	23,843,606	5.03%	79,598,337	-3.95% (Decrease)
1916 -----	25,839,344	13.83%	80,184,402	-3.24% (Decrease)

This shows that while the street railway travel in Philadelphia has increased by about 14 per cent, since 1912, the company has cut the service by over 3 per cent.

The surplus income upon which the company bases its claims for guaranteed dividends includes approximately \$900,000 per year from overcharge tickets. The Department has always maintained that the right of the company to continue this charge is questionable.

3. One of the chief difficulties confronting the City in dealing with the Company is the comparatively high fixed charges of the Company. The Company offers no plan for the amelioration of this condition but proposes to fix it on the City and traveling public for fifty years longer.

The company proposes a conservation plan for itself, not a constructive plan for the City. It does not, in any way, tend to readjust the present transit situation and simplify or remedy the financial mistakes of the past generation, but rather to add another virtuals lease to an already complicated system of leases and mergers, thus aggravating what is already a bad situation and continuing past financial errors for fifty years more. These errors originated in the methods used to bring all the original fifty or more separate companies under one management and control by successive leases, each lessee agreeing to pay larger rentals until the amount now aggregates \$7,300,000 annually, or over 28 per cent. of the gross revenue.

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4. Although the City is expected to provide the larger part of the money needed for the plan, the Company does not guarantee or even hold out bright prospects of a 5-cent fare with universal free transfers, which the citizens were led to expect when they embarked upon this comprehensive plan of city expansion and transit development.

The draft proposes that if, at any time, the semi-annual statement as filed by the lessee, shows that the net earnings of the system for the six months' period have not been sufficient to meet all the various preferred claims of the company, the company shall, "without any order of the Public Service Commission" and without the consent of Councils or any other municipal authority, make a charge for transfers sufficient to produce the necessary net earnings. The report of the Consulting Engineers shows that probably such a charge for transfers will be necessary.

5. The proposed amendment to the 1907 Contract would constitute an admission by the City that the Company has a legal right to continue to collect the exchange ticket revenue.

The company has never legally established its right to make this charge, and this Department has steadily refused to admit that the company possesses such right. Until it is proven, the Department is still opposed to compensating the company for abolishing exchange tickets by surrendering \$665,000 and upwards annually, which is the only direct revenue now received for franchises which have been capitalized at many millions of dollars. The amount of the proposed abatements would pay the interest and sinking fund on over \$13,000,000 of the bonds that will have to be issued by the City for transit development.

6. Although prepared by learned and experienced attorneys, it is of questionable legality.

The City Solicitor believes it to be legal, but other counsel have advised me that, in their opinion, the proposed plan violates the Constitution of the State, and that the former decision in regard to the 1907 contract do not apply to this contract. Only an appeal to the Supreme Court can finally settle this point.

7. The Company gives no bond or security for faithful performance of the Contract.

8. It eliminates the main subsidiary of the Company - The Union Traction Company - as a party to the contract and lease.

This condition has heretofore been deemed absolutely necessary.

9. The City is not given the right of recapture of its own lines.

The right of recapture, provided under Article 18, Paragraph 6, does not give the City the right to recapture its own lines at any time if the lease proves unsatisfactory, without buying the entire stock of the Philadelphia Rapid Transit Company, as provided in the 1907 contract, and as the title to equipment of the City's lines remains with the Philadelphia Rapid Transit Company it is evidently intended that the City shall not recapture its own lines independently.





10. The provision that the City shall have the right to purchase all the capital stock of the lessee at any time during the term of the contract is of doubtful avail to the City.

The purchase of the capital stock of the company, now \$30,000,000 in amount, would require the City to raise, in addition to the sinking fund provided for this purpose, an amount varying from \$29,350,000 at present to \$3,750,000 at the expiration of the contract. The City's borrowing capacity promises to be fully utilized for many years, so that the City's ability to raise the money to purchase the stock of the company is doubtful except during the later years of the contract.

This clause in the company's proposal appears under the terms of the lease. It should be incorporated in the section covering amendments to the 1907 contract.

These clauses are so worded that the City might conceivably be required at the time of purchase, to pay the company the amount of the unpaid accumulated dividends on its stock prior to June 30, 1916, amounting to about \$15,000,000.

11. Satisfactory control of service is not provided.

This is one of the most important and vital sections of a lease, and the paragraphs referring to it are very loosely drawn. Although the lease provides for a unified system, practically all references to control apply either directly or indirectly to the high-speed lines or system only.

12. The terms regarding the title, payments for and financing of cost of equipment are such that at the expiration of the contract the City will virtually have paid twice for that part of the equipment amortized at that time.

A discussion of this feature of the proposal in detail appears later in this report and also in the report of the Consulting Engineers.

13. The proposed method of financing the equipment might be very disadvantageous to the City.

The proposal specified that the funds for equipment shall be provided by first mortgage gold sinking fund bonds, bearing interest at not to exceed 6 per centum. In the provision for distribution of net earnings, the interest on these bonds is placed before all other fixed charges. This interest, estimated to amount to from \$1,003,000 at the beginning of full operation to \$3,198,000 at the end of the contract, therefore is a first charge against net earnings over eight times as great.

It would be further protected by the proposed automatic charge for transfers. Protected in this manner, it would see as if the equipment funds should be secured at less than 6 per cent., except under extraordinary conditions of the money market. The cost of equipment at the beginning of operation is estimated at \$20,077,000, but before the end of the contract an additional investment of \$35,048,000 will be required to keep pace with the growth of traffic from year to year. Under the company's proposal these bonds could be sold on a 6 per cent. basis whatever the state



of the money market, and the City would have no recourse or power of restraint. A difference of 1 per cent. on cost of equipment would reduce the net revenue payable to the City by from \$200,000 per year in the early years of the contract, to \$533,000 at the expiration.

It is provided that the bond and the mortgage and deed of trust shall contain such other provisions and be in such form as the lessee may determine. The same right should be afforded the City, as at the expiration of the contract there will be a large amount of unamortized bonds.

14. The Company should not be allowed to obtain new capital by assessment on the stock of the Union Traction Company on a 6 per cent. basis without the City's approval at the time such capital is raised.

The company's fixed charges are so protected by priority and by the automatic charge for transfers that it should be able to obtain new capital on a basis lower than 6 per cent., except under extraordinary conditions. The City, therefore, should have the right, at the time when new capital is needed, to approve or disapprove of this method of raising it. Any saving in interest on new capital provided by the Company will be of direct benefit to the City on account of its proposed position as residuary payee of the net earnings.

15. No provision for amortization of new investment by the Company in surface lines or extensions has been incorporated in this draft. Definite provision should be made for amortization of new capital invested in the company's system.

As 90 per cent. of the sinking fund charges would in effect come out of the City's net revenue, this sinking fund should, in some manner, be held for the benefit of the City so that it would not be lost to the City in case the option to purchase the capital stock of the company at the expiration of the contract is not exercised.

#### 16. Procedure Proposed for Surface Extension.

The proposal embodies an impracticable plan for the construction of surface extensions by the City. The use of City funds for this purpose might be desirable in order to effect a saving in capital charges and thus lighten the draft upon the City's share of the earnings of the unified system.

This clause is so worded that it would be practically impossible to build surface extensions with City funds.

This clause in question, properly modified, should be coordinated with a clause relating to surface extensions, embodies in amendments to the 1907 contract. The latter provides that the City may require the company to build surface extensions which the Public Service Commission shall determine to be reasonably remunerative to the lessee. The distribution of net income of the unified system is such that surface extensions could not be at all remunerative to the company. Interpreted literally, this clause might bar the construction of extensions by the company, and thus no extensions could be built by either City or company.





17. Charges necessary for the City's depreciation reserve should come before the Company's 10 per cent. deduction from net income.

The proposal provides that a depreciation reserve for the City's construction shall be deducted only when the necessary charges thereto are greater than the City's sinking fund charges. This practically eliminates such a reserve, and the only compensation to the City for the loss in value of its property by reason of use and operation is through its sinking fund charges, which are payable after all the company's deductions, including its 10 per cent. of net income. The company would thus be making a profit of 10 per cent. on that part of the operating cost due to using up of the City's property. This would amount to over \$4,000,000 during the term of the contract, without taking into account the compound interest thereon which the City obtains in its sinking funds.

18. The depreciation reserve fund for the lessee's system passes to the lessee at the expiration of the contract and the charges to it, therefore, should not be left for determination by the Director and Company alone.

During the late years of the contract a venal or careless director might agree to excessive deductions for the company's reserve funds, and 90 per cent. of the money so set aside would be a direct loss to the City, if the City should not find it advisable to purchase the capital stock of the company at the expiration of the contract.

19. Proper consideration is not given to lines outside the City limits.

A considerable part of the company's system lies outside the City limits and it is conceivable that it will be to the advantage of all parties concerned for the company to make additions and extensions outside the City limits in order to give proper service to the territory occupied, and to serve as feeders to the City-built high-speed lines. There should be specific provisions in the contract to cover the construction and operation outside of the City limits.

In the paragraph of the proposal relating to fare, it is specified "the fare for a continuous ride between termini of each route of the unified system shall be 5 cents. \* \* \*" This clause should be corrected to confine its application to the 5-cent limits. Otherwise a passenger for 5 cents could ride to the terminus of any of the outlying lines which enter the City limits. This would reduce the gross revenue by at least \$500,000, and under the terms of the proposal the City's net income would suffer.

20. The entire burden of new forms of taxation in the future should not be saddles of the City to the immunity of the Company.

The proposal provides that all taxes of every nature whatever levied on the lessee or any of the companies underlying it, must be paid, out of the gross revenue of the unified system and thus come before the City's share in the net income. If the Federal or State governments



should, at any time, find it necessary to levy extraordinary taxes on public utility corporations, the amount of such taxes under the terms of the proposal would in effect be paid by the City and not by the company.

It is not improbable that the government might find it necessary to impose taxes which would be in the nature of constriction. In such a case the company would be immune, and the City would have to bear the taxes aimed at the Company.

21. The proposed Nineteenth Street Station on the Market Street subway-elevated line is inadvisable.

This stations would impose additional fixed charges and operating expenses of from \$40,000 to \$50,000 per year. By the terms of the proposal 90 percent. of this extra cost would fall upon the City at a time when it will be confronted with a large burden of deficits on account of the construction program upon which it has entered. The proposed station will be of comparatively slight benefit to traffic, and its introduction into the only express run on the Market Street line will be a great disadvantage to the West Philadelphia traffic.

22. The proposal in favor of the proposed equipment bonds would debar the City from placing any lien on the City's structures.

The company by its proposed method of financing the cost of equipment of the City's lines debars the City from using its subway and elevated structures, costing \$63,000,000 or more, as security for bonds which it may desire to issue at some future date, if it be given authority to issue such bonds. (See Article XVI of the proposal.)

### 23. Minor Defects.

There are many minor points of objection, and the phraseology of the proposal is faulty in a great number of particulars.

## SUMMARY OF THE TRANSIT SITUATION WITH RECOMMENDATIONS

In reviewing the history of the negotiations between the City and the Philadelphia Rapid Transit Company it must be evident that if after three years of negotiations the company and the city are as far apart as ever on the proper terms of an agreement, something must be fundamentally wrong with the situation.

A study of the facts as set forth in this report should prove conclusively that the trouble some elements in the negotiations on the City's side are matters of policy which no one is delegated to settle but Councils and the people. On the company's side, the difficulty lies in the huge over-capitalization of the system, and for financial reasons the entire system must be treated by the City as a unit. The Company has by successive leases, piled up its capitalization until (on a 5 per cent. basis) it is now \$225,000,000, or nine times the gross earnings, and about \$350,000 per mile of track.





The City's program for transit development now contemplates investing in the business \$75,000,000 more (including equipment) making the total capitalization of the business over \$300,000,000, or at least twelve times the annual gross earnings.

Even the present load is excessive for any city transportation system to carry, and instead of coming forward with a plan to lighten the burden and thus help the City the company asks the City to confirm the present load and to pay year in and year out a dividend in addition. Furthermore, the request that the City give up the payments now due it under the 1907 contract is outrageous for the reason that this is now the only return which the company makes the City for franchises which have been capitalized at many millions of dollars.

The Company's Proposal of December 20, 1916.

The company's latest proposal, which is the subject of this report, purports to be a lease of the City's system and was drawn with supreme skill so as to appear to be a lease of the City's system by the company but is, in financial effect, actually the lease of the company's system by the City, with the control and operation left in the company's hands.

The fundamental idea running all through the company's draft is that the City shall protect the company's system against loss of net income caused by the City's high-speed lines competing with the company's lines, and diverting business which it regards as belonging to its lines.

If the system of high-speed lines, which the City has authorized were built by a private corporation, the company could not expect to be compensated for business which the high-speed lines diverted from its system.

Does the fact that the City finances these lines in any way change the situation, and, if so, to what extent.

Co-operation Desired by the City.

In what does "co-operation" as the City understands it consist?

By "co-operation" the Department understands that the City's and the Company's systems shall be operated on a basis of friendly competition, so as to afford the maximum of service to the public at the present fare, and the company shall be responsible for the results in capital investment in the City's system to a normal, proper and just degree.

Maximum service to the public must include interchange of passengers between the systems wherever it is to the advantage of the public.

For the company's "co-operation," which under this proposal, is hypothetical or certainly not real or substantial, the company demands the equivalent of a huge preferential payment, which involves the City's guarantee on both the company's past and future capital investment as well as its operating results.

The City need not pay the company for its co-operation.

The question is "SHOULD IT PAY?"



It may equip and operate its own lines, and it may, if necessary, force the company to transfer passengers with the City's lines upon terms fixed by the Public Service Commission. Such action means aggressive, competition or rivalry.

#### Principle of the Preferential Payment.

There is no established principle warranting the compensation of a street railway company for diverted business or loss in net income caused by competing lines.

The Boston, New York and Brooklyn contracts are the only ones which have been executed where the city has built part of the high-speed system, and in no case has the business of the surface railways been protected.

In San Francisco, where a city-owned and operated surface lines competes with a private system, there is no protection to the older line.

Surface car lines are of great use in supplying such public transportation as a city needs during its period of growth from a town into a city of 500,000 and upward. They are now realized to be but one step in the development of a city's transportation problem, and must later be supplemented by real rapid transit facilities in order to relieve congestion and properly develop the outer zones of the city. These new facilities must, to some extent, duplicate the service of the older surface systems.

Surface and high-speed lines operating in the same district and on the same or adjacent streets must necessarily compete for the passengers of that district whether under the same ownership and control or not. If under the same control, such competition is friendly, but its financial effect is still unfavorable to the surface system. Being under one ownership, however, it becomes a family affair, and no claim for surface line losses can be made on the public or an outside competitor. Theoretically, by the time high-speed lines are necessary, the cost of the surface system should be sufficiently amortized so that the remainder need not be an obstruction in financing the rapid transit lines, but where franchises are perpetual there has been no incentive to do this, although the moral obligation still lies.

Under real competition between high-speed and surface systems no preferential is needed - each system takes its chances for profit based on competitive conditions. Such was the condition in New York when the City owned its first subway line in 1904. No competing line - surface or elevated - was given any preferential or protecting payment as compensation for business diverted to the new subway line of the City. If the owners of the surface lines in Manhattan, instead of an independent operator, had obtained the contract for operating the City's line, would they thereby have been entitled to a claim for losses due to diverted business? The principle is the same no matter who is the operator. The preferential claim was only later allowed in New York and Brooklyn in the dual contracts of 1913 as a financial expedient, so that the city could obtain the large amount of capital which it needed for its program and which it could only obtain through the companies.





The protective feature for diverted business was only incidental, insignificant and not the main reason for it, as the contracting companies really bear most of these losses through subsidiary companies. The main reason for it lay in the size of the construction program which, like the one adopted in Philadelphia, was recognized as too extensive to be carried on a 5-cent fare. Hence, each company was given a limited cumulative preferential, which was not guaranteed, and the city determined to meet its deficit by taxes rather than increase in fare.

A full discussion of this protecting or preferential payment is given in the report of the Consulting Engineers.

#### INADEQUACY OF THE PRESENT FARE.

It must be evident that underlying all this controversy is the bed rock fact that the authorized and established rate of fare will not meet the demands of the present system, as now constituted, and carry the City's program as well. The City is not willing to agree to an increase in the fare for the benefit of the company, because the present fare should be ample for its needs if the company were not over-capitalized. In any contract which may be formulated between the City and the company, on the basis of co-operation or friendly competition, the preferential payment or any similar payment from one system to the other is only warranted when the 5-cent fare is insufficient to cover the requirements of both systems, and the company (which has no other source of income) is to be protected. The City, which has other sources of revenue than the fare, would then assume any shortage of net income.

#### INTENT OF THE COMPANY'S PROPOSAL

The 1907 contract aimed to preserve the company's monopoly of the local transportation system. Before that time the company's service was regulated in part by fear of competition.

The present high-speed line of the company (The Market Street Passenger Railway) might not even now exist had it not been promoted by a competing company, which, perceiving the City's needs, secured the enactment of enabling legislation, charters and City franchises and threatened severe competition with the Union Traction Company, which is wholly a surface system.

That system, to protect itself, formed an alliance with the new company and leased itself to the new company on a basis very favorable to itself.

The new company then secured the 1907 contract to prevent further competition by private companies, or at least to secure a first option on any new lines proposed to be built in the City.

Now that the City has authorized a system of lines which will compete with the company's lines for business, it proposes to do exactly the same with the City that the Union Traction Company did with the Philadelphia Rapid Transit Company in 1902 - protect itself by alliance with the City upon terms which follow as closely as conditions permit those laid down in the lease of the Union Traction Company to the Philadelphia Rapid Transit Company.



A comparison of the company's present proposal with that lease is interesting as showing the same or similar intent - to protect the oldersystem at the expense and to the detriment of the newer.

#### THE CERTAINTY OF A DEFICIT TO THE CITY.

The estimate of the Consulting Engineers show that under the terms of the company's proposal there will be a deficit to the City from the operation of the unified system amounting to \$4,000,000 or \$5,000,000 annually over a long period of years.

The large annual deficit is the result of:

1. The company's present over-capitalization, for which the company is responsible.
2. The rapid injection into the business of new capital at a rate several times the normal rate, for which the City's program is responsible.
3. The overpayment to the Philadelphia Rapid Transit Company for its so-called "co-operation".

If the City should decide to equip and operate its own system, either directly or through an independent operator, with transfers between the City's and the present system, as ordered by the Public Service Commission:

Item No. 1 would be eliminated.

Item No. 2 would remain approximately as before.

Item No. 3 would be reduced to the cost of management only.

There would still remain an annual deficit, but smaller in amount and not continuing for so long a period.

The contract cannot ignore this deficit, which must be met by either the company or the City, or divided between them.

If the company meets it, it must be provided by the earnings of the business.

If the City is to meet it, it must be reflected in the taxes where it is automatically placed by the loan ordinance, and the City's adopted program of transit development.

The City has it in its power to make this deficit larger or smaller by adjusting its program of construction. This was pointed out in the report of the Department a year ago.

The certainty of a large deficit may be regarded as inevitable if the City's program of construction and fares be carried out as now planned, and this deficit will be larger with the Philadelphia Rapid Transit Company as the operator of the City's system than with an independent operator. The advantage of the Philadelphia Rapid Transit Company as operator largely disappears if the fare be increased on the high-speed lines, or of a charge for transfers be made. The advantage of co-operation with the Philadelphia Rapid Transit Company in this undertaking is to have a unified system, with a universal 5-cent fare and free transfers.





## RECOMMENDATION.

It must be evident from this discussion that only City Councils can decide these matters which affect the City's program, the taxes, etc.

The City has adopted the routes for a system of high-speed lines, and provided the financing for them. It now must settle the terms and conditions under which they shall be operated, as required by Section 3 of the 1907 Contract.

Before further negotiations with the company are begun, therefore, I recommend that Councils take such steps as they may deem proper in order to promptly settle these fundamental issues upon which a successful agreement must rest.

## THE CONTRACT A NEW FRANCHISE

This contract is the most important step in the whole transit situation, for it is actually a new franchise and fixes for fifty years the relations between the City and the operator. It must crystallize many now partly formed ideas of each party's rights and obligations into definite and concrete form.

The theory of a contract or franchise is that it shall be fair, just, equitable and advantageous to each party to it, with mutual concessions when necessary.

This question of a franchise is one which will require much careful study and I cannot express my ideas better than by the following quotation from a recent address by F.W.Doolittle of New York City:

"Franchise writing is not greatly different from the drawing of specifications and should therefore have devoted to it the best engineering skill. In fact, many of the past difficulties have arisen from the fact that franchises have displayed more the handiwork of politicians and lawyers.

"The problem seems to be one in applied economics and one in which the engineering profession is capable of rendering real service to the community. There must be determined a proper and just balance between costs, service and obligations of the utility and its patrons with respect to community funds. Future costs must be so estimated as to give due consideration to changing markets, changing standards of service, change volume of business, and the credit of the company as determined by the length of its franchises and the conditions under which it will find itself at their expiration. Where changing conditions are likely to make this too difficult a matter, to take care of indefinite franchise provisions, some method of adjustment at the hands of able and far-sighted men must be provided.

"The industrial world has found that large advantages are to be obtained by the adoption of general profit-sharing plans, and it is suggested that whatever form franchises take, some provision should be made so that able management and conscientious service may be rewarded. The proportionment in which the various parties should participate in the savings resulting from efficient management, it is not easy to determine, but it has been suggested, and with apparent propriety, that the savings may be divided, say 20 per cent.



to the employees of the utilities, and the balance equally between the municipality and the stockholders of the public service corporation."

#### SUGGESTIONS FOR A PROPER CONTRACT

Some of the essential features upon which a fair contract between the City and the Philadelphia Rapid Transit Company may be based, are outlined here:

1. The company shall, if possible, adopt a program which will ultimately effect a readjustment of its finances by refunding or other approved means, and the City shall readjust its program of construction so as to bring the estimated deficit within reasonable limits as recommended by the report of Ford, Bacon and Davis (Appendix A).

2. The City shall not guarantee the company's system as to capitalization, management, or operating results in any way, either directly or indirectly.

3. As the gross and net earnings of both the City's and the company's systems fluctuate from year to year and depend upon factors beyond the City's control, any payment to the company for its co-operation should not be based on gross, net or diverted earnings of either system, but should be, if at all, a payment based on the extent to which the company really co-operates in the City's program and in determining its amount the City shall recognize the company's obligation to be responsible for the result of capital investment in the rapid transit facilities at a normal rate.

4. The payment or fee to the company for acting as manager of the operated of the City's system shall not exceed the amount which would be paid for the same service under independent operation, and preferably graded and proportional to the relative gross earnings of the two systems.

5. The City's system shall be operated for the City's benefit. Physically the company's and the City's systems may be operated as a unit, but financially they must be kept separate, each system to count as its earnings whatever cash it receives on its lines - it may be assumed that the transfers will balance each other.

6. The City may equip as well as build its own high-speed lines, thus owning outright its own system complete.

This provision is not a necessity if the company will furnish the equipment on fair terms, but it will obviate any necessity for the company to make use of the City's guarantee on its operating results in order to finance the equipment of the City's lines. It also makes it possible for the City to take over a completely equipped system if it should decide to recapture its own system at any time.

7. The company's system of surface lines shall be financed by the company and the company must not be permitted to use the City's credit either directly or indirectly, but must stand on its own feet and stand or fall as a result of its own management and acts.





8. The City must be left free to regulate the company's service under the Public Service Commission.

9. Change of fare or charge for transfers, etc., to be left to the Public Service Commission, but no increase is to be for the company's benefit, until the City's capital is treated as well as the company's.

10. The contract of 1907 to be modified as little as may be necessary to correspond with conditions of this contract. Payments now due the City thereunder not to be abated or modified. The company to cancel all claims on unearned and unpaid dividends cumulative since 1907, and change date so that 6 per cent. dividends may be cumulative from date of the contract.

11. The term of the contract shall be fifty years or preferably of indeterminate lengths, with provision that the City may recapture either its own system, or both systems, at any time, after due notice, upon stated terms.

THESE SUGGESTIONS AIM TO PREVENT THE COMPANY FROM PASSING ON TO THE TAXPAYER OR THE FARE PAYER BURDEN NOT DUE DIRECTLY TO THE CITY'S PROGRAM? AND TO PREVENT THE COMPANY USING THE CITY'S CREDIT FOR ITS PRIVATE ADVANTAGE.

INSTEAD OF GUARANTEEING THE RESULTS OF THE COMPANY'S COOPERATION AND PARTICIPATION IN THE CITY'S PROGRAM TO AN UNDESIRABLE EXTENT, AS THE COMPANY'S PLAN PROPOSES, THIS PLAN PROPOSES TO GUARANTEE THE BURDEN TO THE COMPANY. INSTEAD, IT PLACES A CERTAIN DEFINITE AND STATED BURDEN OF THE BURDEN TO BE PLACED ON THE COMPANY BY THE CITY THIS BURDEN REPRESENTS THE COMPANY'S OBLIGATION TO THE CITY IN RETURN FOR THE POSITION AS A MONOPOLY.

THE PRESENT DRAFT AS SUBMITTED BY THE COMPANY DOES NOT FULLY SET FORTH OF THESE ESSENTIAL FEATURES, AND IN UNDERLYING PRINCIPLES WHICH SHOULD AND DETERMINE THE TERMS AND FORM OF THE CONTRACT IT IS SUBMITTED TO THE CITY.

#### NECESSITY FOR REFORM OF COMPANY'S FINANCIAL ORGANIZATION.

If the company shall fairly co-operate in the City's transit program there should be no desire to resort to drastic measures in order to immediately correct what is now generally recognized as bad financing (to use a mild term) on the company's part during the last thirty years. Now that this conditions is known to be so dominant a factor in the transit situation, the City cannot afford to overlook it and allow its effects to hamper the city for many years to come. So long as it affected the company only, the City took no official notice of the company's financial ledgerdemain, but now that it proposes to transfer the effect to the City's Treasury, the City must take serious account of it. The city desires that the company's bad financial handicaps shall be gradually eliminated by mild means, so that surgery will not be necessary, and hopes that the company will make its cooperation real and not mere words in assisting the City to that end. The City is not actuated by a spirit of retaliation, or revenge, in its desire to prevent the company from transferring the effect of its mistakes to the citizens, and has no motive to deprive any legitimate capital of a proper return, but wishes to now inaugurate a plan to gradually lighten the capital burden on the business, instead of keeping the burden of capital about constant as has been the past policy. In the face of the rising labor and material market, it is only by such means that the improved service contemplated can be rendered at the present fare.



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Preliminary to a study of the 1907 contract it may be profitable to review the history of the Philadelphia Rapid Transit Company, and point out the financial obligations which it has assumed, and the strenuous efforts which have been necessary in recent years to prevent a receivership and a general reorganization of the company, which fate has appeared imminent upon at least two occasions in the past.

The first of these resulted in the contract of 1907 with the City.

The second, in 1910, resulted in a change of management and the utilization of the credit and resources of the main underlying subsidiary company in order to avert disaster.

#### HISTORY OF ORGANIZATION OF THE COMPANY.

The Legislature of 1901 passed certain laws legalizing the formation of companies in Pennsylvania for the construction and operation of subways and elevated railways in cities of the State for passenger transportation. Previously the laws had only recognized surface passenger railways and steam railroads having general powers. These laws were passed with little discussion, and promptly signed by the Governor on June 7, 1901. Charters for six subway and elevated railways and seven surface railways were immediately applied for and granted June 10, 1901. These lines are shown on the map forming the frontispiece of this report.

The incorporators of these companies, were men prominently identified with the politics of Philadelphia, and on June 13, 1901, ordinance granting franchises for the construction of 112 miles of elevated and subway track were signed by Mayor Ashbridge, thus inaugurating a movement for rapid transit which, at that time, contemplated purely private ownership and operation. At the same time franchises were granted to the same promoters of the seven surface lines, covering 266 miles of track.

The original owners of these franchises endeavored in a number of ways to interest bankers and financiers in the proposition. Their activities alarmed the owners of the Union Traction Company, and the existing Philadelphia Rapid Transit Company is the outgrowth of the effort to protect that company and avoid disastrous competition.

The Philadelphia Rapid Transit Company is defined in this proposed contract as "a motor power company, duly organized and existing under the laws of the State of Pennsylvania, and by virtue of various leases, agreements and stock ownerships, is operating a system of surface, elevated and underground railways in the City of Philadelphia, with minor extensions into surrounding territory and possessing the authority inter alia to undertake the equipment and operation of rapid transit facilities constructed by the city."

It is not necessary at this time to go into the details of all the political, financial and other factors which entered into the decision to organize this company.





## LEASE OF THE UNION TRACTION COMPANY

This company, the Philadelphia Rapid Transit Company, belongs to the class of corporations known as "Holding Companies" and was chartered under the law of March 22, 1887, and began business as of May 1, 1902, by purchasing outright from the original promoters the chargers, stocks and franchises of all these proposed rapid transit and surface lines, and leasing for a period of 999 years the Union Traction Company, which controlled 457 miles of surface tracks, mostly within the City limits.

This lease of the Union Traction Company was drawn by that company attorneys with every care and precaution to protect the Union Traction Company, and provided for a rental as high as it was deemed possible for the Philadelphia Rapid Transit Company to pay without reducing it to bankruptcy. That rental was based on optimistic estimates and seemed excessive at the time. Subsequent events have proved it to be beyond the earning capacity of the property until very recently.

A reference to Diagram 6 will show clearly that the financial difficulties under which the company labors are not of recent origin but that they originated largely in the terms of the lease of the Union Traction Company in 1902, and this lease, carrying with it, as it does, a heavy burden of charges still further underlying, makes it almost impossible for the company as now situated to provide such high-speed service as the City requires without the use of the City's credit.

The company realized, soon after its formation, that the rentals fixed charges, and franchise obligations which it assumed under its lease of the Union Traction Company were more than it could carry, and the contract of 1907 resulted from an attempt of the company to strengthen its financial position by enlisting the City's aid and protection by commuting uncertain franchise elements into fixed and definite annual payments to the City on a basis favorable to the company.

### Conditions Leading to the 1907 Contract.

Public service corporations in the past, in their desire for profits for their owners, having often neglected to furnish service to the public of the standard to which the public believes it is entitled. This difference in interest has led for many years to controversies between the public service corporations and the public.

The history of the surface transportation companies of Philadelphia is a story of constant effort on the part of the owners of the companies to prevent competition and increase their profits on the one side and of the desire of the public to secure a higher standard of service on the other side.

The year 1907 is an important one in the history of traction development in Philadelphia. Up until that year, the City had more or less control of the traction situation. It is true that the City has not exercised its authority or rights, but up to that time it had the power to demand and secure from the company a square deal in the traction situation.



What is known as the contract of 1907 between the Philadelphia Rapid Transit Company and the City represents the culmination of the controversies which has existed up to that time and was brought about in an endeavor to remedy the situation.

It is interesting to note that the conditions existing at that time in Philadelphia were not peculiar to Philadelphia, but were more or less general over the entire country, and it was being generally realized that public utility corporations chartered by the States were becoming a law unto themselves and beyond the control of the local authorities. It was realized that the public must exercise some control over the financing, profits and service rendered by these public service companies, and in the same year that Philadelphia signed the contract with the Philadelphia Rapid Transit Company, the State of New York and Wisconsin established the first Public Service Commissions with authority to regulate and control all public utility corporations. Once started the idea rapidly spread, and today nearly every State in the Union has organized a Public Utility Commission; Pennsylvania having followed, somewhat tardily, in the year 1913.

In discussing the contract of 1907, which has not been in existence for ten years, it may be pertinent here to give a few of the underlying causes which led to the execution of this contract.

The Philadelphia Rapid Transit Company in 1907 realized that the requirements of its leases and the requirements of its City franchises and other burdens which it had assumed were more than it could carry under its limitations. It therefore set about a plan of readjustment which should relieve it of many of its burdens.

To this end its eminent attorneys prepared a form of contract and submitted it to the City offering the City what purported to be a cash substitute and a partial control over the company's financial requirements and service rendered in return for relief from certain obligations. At the same time the contract provided that while recapture of the company could be secured at the end of 50 years upon terms more or less improbable, it repealed the City's right to recapture the underlying franchises, thus strengthening the position of the underlying companies. In addition a tentative profit-sharing clause was provided and the contract as a whole was placed before the public so as to appear largely for the City's benefit. At least the City was given to understand that it would not suffer financially and that it would be in a better position as to the control of the company.

The contract was executed to take effect July 1, 1907, without any particular investigation, and the company's statements were accepted without questions or analysis. Now after being in existence for ten years, it is realized that the City has not received a quid pro quo under the contract.

The city gave up its most valuable rights and received in return for some of them nothing of substantial value.

A contract of this character is theoretically supposed to be for the mutual benefit of the contracting parties, but this has not proven so.





## FORMER FRANCHISE OBLIGATIONS OF COMPANY TO CITY

There existed in the company's underlying franchises a number of conditions which caused it more or less anxiety as well as the probability of great future expense, the chief of these being the Ordinance of July 7, 1857, which contained the following provisions:

"Section 1. The Select and Common Councils of the City of Philadelphia do ordain, That all Passenger Railroad Companies within the City of Philadelphia shall be subject to the restrictions, limitations, terms and conditions hereinafter provided; and any such company, before entering upon any road, street, avenue or alley, within the limits of said City, shall be understood and deemed to be subject thereto, upon the conditions hereinafter prescribed.

"Section 3. That all Railroad Company as aforesaid, shall be at the entire cost and expense of maintaining, paving, repairing and repaving that may be necessary upon any road, street, avenue or alley occupied by them. That for the convenience of the public, it shall also be the duty of such companies to clear the streets, or other public highways that they may occupy of snow or any obstructions placed therein by such companies, when the same impedes the travel upon said highways and for any neglect on their part to do so for a period of five days, they shall be punishable by a fine of twenty dollars for each square that may be so impeded, recoverable before any Alderman of the City of Philadelphia, and payable into the City Treasury, upon complaint of five citizens residing therein, upon oath or affirmation; Provided, Nevertheless, that whenever any such company shall deem it inexpedient to use their said road during the continuance of the snow, they shall provide comfortable sleighs, or other suitable vehicles for the transportation of passengers along the route of their railway at the usual rates as aforesaid, the, and in that case, no such penalty shall be recoverable."

"Section 8, of the same ordinance, which reserved the right of recapture to the City upon terms while somewhat indefinite, nevertheless determinable by the courts, reads as follows:

"Section 8. The Directors of any such company or companies shall, immediately after the completion of any passenger railroad in the city, file in the office of the City Solicitor, a detailed statement, under the seal of the company and certified under oath or affirmation by the President and Secretary, of the entire cost of the same; and the City of Philadelphia reserves the right at any time to purchase the same, by paying the original cost of said road or roads, and cars at a fair valuation. And any such company or companies, refusing to consent to such purchase, shall thereby forfeit all privileges, rights and immunities they may have acquired in the use or possession of any of the highways as aforesaid; or should any such company or corporation neglect to run cars upon their road or roads for the accommodation of the public for the space of three consecutive months, the Councils reserve the right to rent the same to any other person or persons, company or companies, who will be willing to run cars on the same; or in the event of the Councils, as aforesaid, being unable to rent said road or to place cars upon the same for one year after the same shall have been abandoned, as aforesaid, by the company constructing or owning the same,



then, and in such case, the Councils reserve the right to cause the said road to be removed from the highways, and to sell or dispose of the materials thereof, and after paying all expenses arising therefor pay the balance, if any, to the legal representatives of the said defaulting company."

The Ordinance of July 7, 1857, was further strengthened by the ordinances granting the right to electrify the various roads in 1892 and 1893, in which it was specifically directed that the companies shall enter into an agreement or contract with the Mayor of the City which shall

"\* \* \* among other things provide, that the said railway company shall agree to keep and maintain in good order at all times, whether paved, macadamized or unimproved, all streets, avenues or roads traversed by its lines of railway or by its trolley system, that the said railway company shall agree to accept as binding upon it the terms and conditions of all laws and ordinances now in force or which may hereafter be passed relating to the government, control or regulation of railways or railroads of any kind within the City of Philadelphia. That in the construction and equipment of its roadbed, cars or its trolley system, all kinds and character of materials, supplies or workmanship, plans, profiles, elevations, designs, etc. shall be subject in every way, at all times, to the approval and inspection of the Departments of Public Works, and Public Safety; that the said company shall take down and remove the overhead trolley system whenever directed to do so by ordinance of Councils; that the said railway company shall run cars over their entire line at intervals not exceeding five minutes between the hours of 6 and 9 A.M. and 5 and 8 P.M., and at intervals not exceeding ten minutes at all other hours of the day, excepting between the hours of 12 midnight and 5 A.M. when they shall run at least every hour. The rate of fare to be charged for a single continuous ride over the entire line shall not exceed the present fare, excepting between midnight and 5 o'clock A.M., when it shall not exceed 10 cents. \* \* \*"

Section 3. That the said company shall, under the supervision of the Department of Public Works, repave in good substantial and workmanlike manner, with Belgian blocks or other improved pavement, as directed by ordinance of Councils, or by the Director of the Department of Public Works, and to be done in a manner to be prescribed by and to the satisfaction of the said Department, all streets to be occupied by it not already repaved with such improved pavement, and also all other streets heretofore repaved with an improved pavement, the repaving of which is not satisfactory to the said department, said repaving to be done from curb to curb for such length of street as shall be occupied by poles and trolley wires or by other electric motive-power system. Such repaving shall be commenced upon each of the said streets as soon as the construction of the roadbed, or of the poles or trolley wires, or other electric motive-power system, shall be commenced thereon, and shall be pushed and completed with all reasonable and proper diligence as rapidly as such system is being constructed in said streets, or as Councils may by ordinance otherwise direct; if not thus pushed, the Director of the Department of Public Works may enter upon the streets and complete the same at the expense and cost of the said railway, trolley or other electric motive-power company constructed therein; and that said company





shall at all times hereafter keep the said paving in good repair when directly to do so by the Department of Public Works so long as the said trolley or other motive-power system shall be maintained on such streets; Provided, That such repaving or repaving aforesaid shall not free the said company from any other paving, repaving and repairing the streets occupied by it that may be required by any ordinance of Councils that has been passed, or that it may be passed, or from any other duty or obligation resting upon it regarding paving and repaving that is incumbent on it under and in virtue of any Act of Assembly".

Records are not available showing what these conditions cost companies when the roads were originally constructed; nor is there any record to show that the detailed statement was filed with the City Solicitor on the completion of any of the passenger railroads, certifying to the entire cost of the same at that time.

#### PAVING OBLIGATIONS.

Under the ordinances of 1892 and 1893, the underlying companies of the Philadelphia Rapid Transit Company spent an amount estimated to be approximately \$15,000,000 in carrying out the paving conditions specified and the company realized that the paving maintenance was rapidly increasing in amount and would shortly become an unbearable burden as the renewal of the pavement was required. Most of this pavement had originally been laid down between 1893 and 1896, under a ten-year guarantee, and as the paving was more or less damaged by plumbers, by the Water and Gas Departments of the City and by other companies opening the street for construction, litigation would probably have resulted upon an order of the City to renew certain of the pavement.

The actual cost of these pavement to the underlying companies (\$15,000,000 before 1902) is now in the capitalization guaranteed by the Philadelphia Rapid Transit Company at a very much larger amount owing to the refinancing that has taken place, and today it is safe to estimate that at least one-eighth of the company's fixed charges of \$1,200,000 is the direct result of this franchise payment or condition imposed by the City in an attempt to obtain for itself some part of the financial benefit which it was believed would result from the exercise of the license or franchise under which the companies were to operate.

Practically all the paving for which the company was responsible was laid prior to the year 1902 and paid for almost entirely by the original traction companies - the Peoples Traction Company, The Electric Traction Company, the Philadelphia Traction Company, The Hestonville Company and the Union Traction Company. The first four companies preceded and afterwards became subsidiaries of the Union Traction Company.

Up until the year 1893 in which the electrification of the Philadelphia began on a large scale, Philadelphia probably could boast of being one of the poorest paved cities in the County. During the years 1893, 1894, 1895 and 1896 Philadelphia's streets were transformed by the laying of between 5,000,000 and 6,000,000 square yards of brick, asphalt and Belgian block paving. The average cost was probably \$2.50 per square yard, which included the five or ten-year guarantee for the maintenance of the pavements. The full burden for maintenance of these pavements, therefore did not fall upon the company until after 1903.



In 1907, when it was proposed that the City should take over the pavements on all the streets occupied by the company, and thereafter maintain them, the company paying a fixed sum annually to the City in lieu of certain obligations including maintenance of these pavements, the company claimed that \$500,000, the amount fixed, was in excess of its average expenditure on this account for the preceding five years. These payments were stated to be about as follows:

Paving Maintenance.....	\$ 360,000
Snow Removal.....	20,000
Car Licenses .....	110,000

\$ 490,000

In this figure no allowance is made for the amortization or renewal of the existing pavements. Had the City's ordinance specified that these pavements should be paid for by a bond issue to be amortized in say 20 years by a sinking fund deducted from earnings after dividends on the company's stock, the situation would have been less serious as the bonds would now have been amortized and the payments would not appear in the operating expenses or maintenance. This is not to be understood as in any way approving of the general practice of requiring passenger railway companies to be responsible for street paving as a franchise payment. Until recently it was common practice for cities to impose such a condition and the lack of knowledge as regards the profits of the business and inability to foresee future conditions were responsible for the acceptance of such conditions by the companies twenty years ago. It is not to be assumed, however, that the company would be to any degree in a better condition today and this paving condition been omitted. The capitalization of the company would probably have been about the same, as it was based on what it was estimated by the promoters and bankers "the traffic would bear," and neither Councils, nor the company dreamed at the time that the conditions imposed would in any way hamper the welfare of the company or City in the future.

With wages of platform men at 17 cents per hour or less, and coal selling at \$2.00 per ton or less, the margin of profit on a 5-cent fare with few transfers seemed large at the time and the burden from the paving was so little realized that the promoters accepted the franchises with little protest. It was nearly ten years before the company realized that to carry out the conditions of the franchise would mean eventual bankruptcy.

#### AIMS OF THE COMPANY IN THE 1907 CONTRACT.

In drawing up the 1907 contract it was desired on the company's part:

1. To retain the franchise of the Frankford Elevated Line and extend its life.
2. To be relieved from the obligation to construct the remaining rapid transit lines for which the company held charters and franchises.
3. To secure the first option to build all new transportation lines, surface or high-speed, which the City might determine to be necessary.





4. To remove the conditions in the electrification ordinances calling for the removal of the overhead trolley wire when directed by ordinances of Councils, this condition having hung over the company's like a sword of Damocles.

5. The removal of the right of the City to recapture the lines as provided in the ordinance of 1857.

6. The relief from the burdensome paving conditions which would eventually mean bankruptcy.

7. To secure the City's moral support and co-operation with the company, and by the spirit of partnership proposed, render the company more or less immune from attack by the City, which was bound under the contract to acknowledge and protect, as far as might be possible or necessary, the perpetual franchises of the subsidiary companies.

#### ADVANTAGES CLAIMED AS INURING TO CITY FROM 1907 CONTRACT.

From the City's side, the contract was argued to be desirable;

1. For the reason that the City would secure complete control of the pavements on its streets; that the company would pay a fixed sum per annum, starting with \$500,000 into the Public Treasury in lieu of its franchise requirements.

2. For the reason that the City would have a voice in the management and control of the corporation, and to give this a semblance of fact, the Mayor and two directors appointed by the City were to sit in the company's Board of Directors.

3. The City was to share equally with the company in all net earnings above that amount necessary to pay 6 per cent. on the company's stock cumulative from 1907.

4. All future financing of the company was to be approved by the City Councils and the company's accounts were to be audited annually by the City Controller.

5. A Sinking Fund was established out of earnings to enable the City to purchase the company's stock at par at the end of the contract.

Thus the City was to be made a partner in the profits, but not in the losses of the company.

The City in giving up its right to recapture the perpetual franchises undoubtedly sold its birthright for a mess of pottage.

But ten years, or only one-fifth of the term of the contract, have now elapsed since the contract was executed, and not only has there been no money payable to the City on the surplus available over 6 per cent. but the cumulative fund due the company for dividends since 1907 amounts to over \$15,000,000 and it is improbable that it would share in the profits for many years, even with no improvement in the service.



BEARING OF 1907 CONTRACT ON PRESENT SITUATION.

It is this 1907 contract which must be substantially modified in order to permit the execution of a lease for the new lines to the Philadelphia Rapid Transit Company.

The following statement, published by the former Director of this Department, April 7, 1914, shows the effect of this contract on the present situation. The company's request to be relieved of the cumulated payments due under this contract will, if granted, represent a total relief of all franchise payments and equal in amount the dividend now demanded by the company:

(QUOTATION FROM PAMPHLET DATED APRIL 7, 1914.)

"CONCESSIONS OBTAINED BY P.R.T. CO. IN 1907 CONTRACT."

"In order that all parties in interest may realize how generous the City of Philadelphia has been to the P.R.T.Co. in the past, and what unusual obligation rests upon the P.R.T.Co. to reciprocate by aiding the City in establishing rapid transit facilities, a clear understanding should be had of some of the concessions granted to the P.R.T.Co. under the 1907 contract.

"At the time of the execution of that contract, the P.R.T.Co. was bound to maintain and repaid the paving from curb to curb on streets occupied by its car tracks and renew the same when worn out. The pavements were then approximately thirteen years old, and not having a concrete foundation, had a life of about twenty-five years. The estimated cost of this paving was \$15,000,000, and, therefore the accrued liability of the P.R.T.Co., for the renewal thereof, due to its half worn out condition, amounted to approximately \$7,500,000, from which the P.R.T.Co. was exonerated by the City under the contract.

"If the 1907 contract had not been made, the annual liability of the P.R.T.Co. with respect to various items referred to therein, would have been in the amount shown in column 1 of the following table. By the operation of the 1907 contract this annual liability as of 1913 was reduced to the amount shown in column 2, following:

PRESENT ESTIMATED ANNUAL GROSS VALUE TO P.R.T.CO. of 1907 CONTRACT.

	Liability for annual payment under Ordinance Conditions Existing Previous to 1907 (Estimated)	Payments to City Under 1907 Contract for 1913
Pavement.....	\$ 400,000	
Snow removal (as per City Solicitor Kinsey's Opinion of 1904) .....	200,000	
Depreciation fund for renewal of pavement when worn out.....	750,000	
Licenses.....	117,500	
(Table continued)		550,659





Sinking Fund.....

TOTAL.....

1,431,500

Cash Advantage to the P.R.T.Co.

\$ 846,861

As shown above, the P.R.T.Co. has been relieved by contract of a present annual liability of \$846,861.

"It is estimated that this cash advantage to the P.R.T.Co. during the fifty years of the 1907 contract will amount to \$27,533,000. This should be added to the accrued pavement renewal liability in 1907 of about \$7,500,000, making a total obligation of the P.R.T.Co. of \$35,033,000 canceled in this way by the 1907 contract.

RENTALS PAID BY PHILADELPHIA RAPID TRANSIT COMPANY TO ITS PRINCIPAL AND  
SUBSIDIARY COMPANIES UNDER CONTRACTS

	Amount Paid in per cent of of Capital	Total Amount Paid in of Capital	Percent of Capital
Principal Subsidiary Companies	Stock	Amount	Percent
Union Traction Company.....	\$ 17.50	\$10,500,000	\$1,800,000 17.1
People's Traction Company.....	30.00	6,000,000	600,000 10.1
Electric Traction Company.....	47.42*	8,297,920	711,157 7.0
Philadelphia Traction Company .....	50.00	20,000,000	1,600,000 8.0
Frankford and Southwark Phila. City Pass. Rd. Co.....	50.00	1,875,000	675,000 36.0
Union Passenger Railway Company.....	30.83	925,000	285,000 30.8
Peoples Passenger Railway Company.....	10.27	924,073	95,000 10.2
Second and Third Sts. Pass. R'y Company.	36.36	771,073	254,448 33.1
Continental Pass. Railway Company.....	29.00	520,000	150,000 29.0
Thirteenth and Fifteenth St. Pass. R'y Co.	18.75	774,529	240,000 31.0
Ridge Avenue Passenger Railway Company.	28.00	420,000	180,000 42.9
Philadelphia City Pass. Railway Company	23.75	475,000	112,500 23.7
Citizen's Passenger Railway Company....	19.10	192,500	36,675 19.1
Wormantown Passenger Railway Company..	19.09	572,500	109,500 19.1
Green & Coates Sts. Phila. Pass. R'y Co.	15.00	150,000	22,500 15.0
Phila. & Grays Ferry Pass. R'y Company	25.00	110,157	27,539 25.0
West Phila. Passenger Railway Company	50.00	150,000	75,000 50.0

Total of Principal Companies (c) ----- \$ 55,071,543 11,175,374 20.1

\* Average

(a) \$ 57,437 of this amount is income to Phila. Rapid Transit Co. account

(B) 392,950 of this stock owned inter-company.

(C) Several companies are not included.



REPORT OF THE PHILADELPHIA RAPID TRANSIT COMPANY

ESTIMATED FINANCIAL RETURN TO THE CITY

Philadelphia, June 3, 1921

Mr. William C. Twining, Director  
Department of City Transit  
Philadelphia, Pennsylvania.

Dear Sir:-

We hand you herewith our report on the engineering and financial features of the proposal of the Philadelphia Rapid Transit Company for the equipment and operation of the rapid transit system to be built by the City of Philadelphia.

Summarizing this report, we would advise you first as to the probable financial return upon the proposed investment of the City.

ESTIMATED FINANCIAL RETURN TO THE CITY.

As it is impossible to determine closely the result of financial operation for so long a period as that covered by the fifty-year lease, we have prepared, based on the present probabilities and tendencies, estimates for this period, which indicate the probable maximum and minimum limits of return to the City. The estimates for the early years of operation are more likely to be realized than those for the later years, and this early period is the one of greatest probable deficit to the City and, therefore, of greatest importance in the consideration of this problem.

As representing the minimum limit, we have modified the previous Department estimates to comply with the terms of the company's proposal. We believe this estimate is entirely conservative and can be realized upon under any but abnormal conditions.

Our estimate of maximum limit is based upon premises which have been used by the company for previous estimates, and this, we believe, is possible of attainment under favorable conditions.

As indicated by these estimates, under the company's proposal an investment by the City of \$87,300,000 with a 5-cent fare, and free transfers, will show after 1921 for the first fifteen years of complete operation an average deficit of between \$4,000,000 and \$5,000,000 per annum.

This large operating deficit is caused principally by the following:-

1. The proposed outlay for transportation facilities is to be made within a period shorter than that necessary for a proportionate growth of population and traffic.





2. In the early years of operation the rapid transit lines will largely duplicate the service of present surface lines.

3. The present revenue from exchange tickets is abolished.

Under the terms of this proposal and with a 5-cent rate of fare, and assuming financial results an average between the maximum and minimum estimated limits, the City will not begin to receive net income to apply to the payment of interest and sinking fund charges upon City bonds issued for transit development until about ten years after the commencement of operation in 1921 of the rapid transit lines; the City will receive the full amount of its interest and sinking fund charges in about twenty-five years after the commencement of operation in 1921.

At the end of the fifty-year period of the contract, the indications are that the net deficit, if any, to the City from operation for the entire period, would probably be small in comparison with the value at that time of the City-owned rapid transit system, which the City would have substantially paid for through the operation of the City sinking funds.

The terms of the company's proposal provide for the payment of \$1,500,000 dividends annually upon the company's stock for the payment of interest and sinking fund charges on the City's investment. In order to produce sufficient net earnings to pay these dividends, it will be necessary during certain years of the period of early operation to make a charge of at least 1 cent for transfers between high-speed and surface lines. As this charge for transfers would be imposed to maintain the dividends of the company, it will make no change in the above-mentioned annual deficit to the City of from \$4,000,000 to \$5,000,000.

#### METHODS OF PROVIDING FOR DEFICIT TO CITY.

While various methods have been suggested to compensate partially for these deficits, their entire amount can probably be provided for directly in only one of two ways:

1. An increase in the tax rate amount, as a maximum in 1922, to about 25 cents per \$100 and gradually disappearing thereafter.

2. A charge in 1922 of a 6-cent fare on both high-speed and surface lines, with free transfers, or an alternate charge of 8-cent fare on high-speed lines and 5-cent fare on surface lines with universal free transfers.

Of these methods of providing for the deficit, that of raising the rate of fare to equal the cost of service would seem to be fairer to the public and better economically. It places the cost of a car ride directly upon the passenger rather than upon the owner or renter of real estate. From an economic standpoint the fixing of rates of fare that will pay the interest and sinking fund charges on the City's bonds is desirable, as it will make these bonds self-supporting and thus exempt them from the debt limit. The City, in such event, would have the ability to issue \$87,300,000 of additional bonds either for further subway construction, port development or possibly for other purposes.



that at a 5-cent fare the City, for the entire fifty-year lease, will show neither surplus or deficit; in other words, the deficits of early years would be made up by the surpluses towards the end of the lease. Consequently, if higher than a 5-cent fare be charge in early years, lower than a 5-cent fare could be charged in later years if the lease permitted, and if the capital investment be not carried beyond the actual requirements of traffic.

The deficit may be lightened by a number of other expedients which, if made use of singly or in combination, might materially reduce the amount that will have to be raised by increased taxed or fares, and likewise shorten the period of deficit. Principal among these are:

- (a) One mill personal property tax, surrendered by the State to the City.
- (b) Abnormal increase of assessments and taxes due to rapid transit development.
- (c) Temporary issue of City bonds to pay deficits in part.
- (d) Deferring of construction of certain high-speed lines until construction costs are reduced.
- (e) Postponing portions of the City's program of rapid transit development.
- (f) Assessment of construction cost upon the real estate benefited.
- (g) Grading the sinking fund charges of future bond issues.
- (h) Modifications of the company's proposal.

We have shown in our report the estimated financial value of each of these methods of providing for or reducing the City's deficit. In general, however, the practicability or legality of some of these suggestions is doubtful, and with others the income produced will be applicable to pay for the City's deficits, or is comparatively small.

While every practicable advantage should be obtained from these suggestions, we do not believe that they will wholly obviate the necessity in years of early operation, either of raising the rate of taxation or increasing the fare as above stated.

#### INCREASED COST OF CONSTRUCTION OF RAILROADS AND SUBWAYS.

The original report of the Transit Commission, 1911, which we assisted in preparing, comprised a study of the cost of construction of rapid transit lines, designed to provide for the probable needs of the City, and the time represented an investment which could be recovered by the City and Company with the revenue produced by the increases of traffic in a city the size of Philadelphia. The total estimated investment in the cost of construction of recommended subway and elevated lines approximately \$51,916,000, comprising the North and South Street subways, with delivery loop, and the Frankford and Market Street subways to be operated until 1927 through the present Market Street Subway-elevated line.





Due to the enlargement of this program by the construction of new lines and extensions of original lines, and on account of the unprecedented rise in the prices of labor and material, the estimated investment by the City has increased to \$87,300,000. Of this \$35,384,000 about \$19,292,000 has been due to enlargement of program \$11,792,000 to increased prices and \$4,300,000 to the capitalization of City's interest and sinking fund charges for the first year of operation, which is now permitted by law.

An interesting statement of the progressive enlargement of this rapid transit program with increase of cost and anticipated deficit to the City is shown in the following:

COMPARISON OF FINANCIAL RESULTS OF RAPID TRANSIT ESTIMATES FOR VARIOUS PROGRAMS OF CONSTRUCTION AND OPERATION			
Year Estimate Was Made	Estimated Cost of Construction	Estimated Maximum Annual Deficit of City at 5-cent Fare	First Year Showing all City Charges Earned
1913.....	\$ 51,916,000	\$ 1,280,000	1927
1914.....	54,002,000	1,366,000	1931
1915.....	67,088,000	1,625,000	1941
1915 (Revised).....	64,420,000	2,181,000	1939
		( 5,157,000*	1955
1917.....	87,300,000	( 4,488,000*	1941

\*Maximum and minimum limits.

This table shows clearly the increasing liability to the City which has been involved in the progressive development of the rapid transit program.

If the City desires to keep within its immediate resources for rapid transit, it can, without relinquishment of its ultimate purpose, defer about \$22,000,000 of construction work until more practicable financially, under which condition the remaining cost of construction, about \$65,000,000, would be provided for by the funds already voted for transit development.

#### PREFERENTIAL PAYMENTS TO COMPANY.

With reference to the propriety of the City granting the company a preferential payment to represent its existing net income before the company to the City of any of its fixed charges, we believe that the history of rapid transit development in large American cities, especially in New York, shows the desirability of some such provision where extensive developments are undertaken.

As the preferential proposed in Philadelphia becomes practically a guarantee by the city for a period of fifty years, it is of great importance that the form and amount be studied with care.



This preferential, which is provided for in the contract, in rate of fare by a charge for transfers, as provided in the contract of the Philadelphia Rapid Transit Company, is more favorable to the company than the fixed preferential depending upon a fixed rate of fare provided for in the New York Contracts.

For the detailed reasons stated in our report, if an increase in fare be permitted in the agreement we believe that investment should fairly result in a profit, with the company's stock, instead of the dividends on this stock being paid before any payments are made to the City. If this automatic increase in fare be eliminated from the agreement, we believe that the company is fairly entitled to include in the preferential a dividend on its stock. Without a study of the service of the company, and until an opportunity to make a study of the audit now being made, we cannot advise whether such dividend should begin at as large a rate as 5 per cent. on \$30,000,000.

#### MISCELLANEOUS

We advise against building the Nineteenth Street Station in the present Market Street Subway for reasons stated in our report.

We believe that the Market Street subway-elevated bridge east of Thirtieth Street can be used by the Darby line until June 30, 1924, or later.

We recommend that the straightening of the Market Street line under City Hall be deferred until it can be done without increasing the maximum annual deficit, which the City will have to meet on account of transit development.

If under the Company's proposal the funds for cost of equipment be provided by bonds bearing interest at 6 per cent. the interest charges and consequently the deficit of the City would be greater by over \$500,000 annually than if the equipment were financed by the City at a rate of 4 per cent. per annum.

The provisions for transfer of the equipment to the City at the expiration of the contract are not clear, but appear to require payment on the City to pay the company for entire cost of equipment at the expiration of the contract. During the term of the contract the cost of equipment will have been largely amortized by the sinking fund provided for that purpose, and the provision for the division of net income is such that the sinking fund charges practically come out of the City's share. The City would, therefore, in effect be paying twice for the equipment, which, if intended, is not equitable.

The sinking fund charges on City bonds, or the portion of such charges equivalent to a proper depreciation reserve, should be deducted from net earnings before the company's 5-per cent. dividend is paid.

#### RECOMMENDATIONS:

We believe that a businesslike method of handling the problem now presented to the City is comprised in the following plan:





1. Put the program of construction of rapid transit lines as nearly as practicable to the amount of the appropriation.
2. Defer for a period of lower prices such portions of the construction as will not interfere with the value of the rapid transit system to the public.
3. Devote to the payment of fixed charges on the City's investment in rapid transit such part as practicable of the abnormal increase of taxes on real estate caused by rapid transit development.
4. If there should still remain a deficit in the payment of the City's interest and sinking fund charges on cost of construction, increase the fare in order to make the undertaking self-supporting; first, by a charge for transfers between high-speed and surface lines; or second, if this be not sufficient, by charging 6 cents on high-speed lines with a 5-cent fare on surface lines; or third, by charging uniform 6-cent fare on both high-speed and surface lines.
5. Formulate a working contract embodying the foregoing changes and guarding the City's interests in the particulars discussed in our report.

Respectfully submitted,

FORD, BACON & DAVIS

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THE 1907 CONTRACT  
BETWEEN THE CITY OF PHILADELPHIA AND THE CITY OF PARY

AN ORDINANCE

Authorizing the execution of a contract between the City of Philadelphia and the Philadelphia Rapid Transit Company, affecting, fixing and regulating the duties, powers, rights and liabilities of the City and of the Philadelphia Rapid Transit Company, and its subsidiary companies, and the relations and respective interests of the contracting parties, providing for the future management and extension of the street railway system controlled by the Philadelphia Rapid Transit Company, and the final acquisition of its leaseholds and property by the City, and repealing so much of former ordinances as is inconsistent therewith.



THE UNIVERSITY OF CHICAGO

Section 1. THE CITY OF PHILADELPHIA, in accordance with the powers granted by the Act of the General Assembly of the Commonwealth of Pennsylvania, approved April 15, 1907, and entitled "An Act authorizing contracts between cities, boroughs or townships of the one part, and street-car, trolley, cable, electric, gas, water, telephone, telegraph, power, and other utility companies, of the other part, affecting, fixing and regulating the franchises, powers, duties and liabilities of such companies, the management of the same, the relations and respective rights of the contracting parties, and the ultimate acquisition by such cities, boroughs and townships of the property, leaseholds and franchises of such companies," as well as of all other powers inherent in the City of Philadelphia, shall enter into a contract with the Philadelphia Rapid Transit Company, owner, lessee and operator of various surface, elevated and underground street railways in the City of Philadelphia, the form of which shall be in the form following for the purpose of accomplishing the objects set out in the recitals and covenants therein contained:

**Journal of Management Education**

Agreement entered into this                      day of                      one thousand nine hundred and seven, between the City of Philadelphia                      (hereinafter called the City), and the Philadelphia Rapid Transit Company of the other part (hereinafter called the company).





and it is believed that it is to the benefit of the public of the parties hereto to supersede the former and regulate the relations between the parties fixed, fair and uniform;

and the City shall have a voice in the management of the company and a supervision of its accounts and

and the City shall have a large sum of money to be used to improve and extend the present system of the company, in order to better serve the public; and for this purpose it is essential that the of the company be clearly defined and the underlying properties unquestioned, and its rights to take in the future assured, in order that it may obtain credit for the increased transit facilities, for the welfare and the development of the City.

and the City shall It is desirable that arrangements be made requiring the direct payment into the City Treasury of a sum of a license fee per car, and a further sum to represent the cost of maintaining street pavements and caring for the streets and passenger railway tracks, in order to enable the City to carry out this municipal work. And it is further desirable that there be made for the sharing by the City in the earnings of the company, for the further growth of the City (without in any way making the City liable for any of the obligations of the company), and the ultimate acquisition by the City of the leaseholds and property of the company.

NOW WHEREFORE, in consideration of the covenants and undertakings herein on behalf of each party with the other, and the payments to be made by the company to the City, and the re-adjustment by the City of the obligations of the company, and the confirming of the rights, franchises of itself and its underlying companies and other conditions herein contained, it is covenanted and agreed between the parties as follows:

#### CAPITAL STOCK OF THE COMPANY TO BE PAID UP

First. The company shall, by appropriate action within thirty (30) days after this contract is executed, make a call on its stockholders for the portion of its capital stock, which shall be payable in installments of five (5) dollars each, and shall be payable not later than December 31, 1908. All of the money so expended for the completion of improvements now undertaken, the providing of new lines, power and equipment, and the general improvement of the transit system. No further increase of capital stock or indebtedness (savings where the latter is by way of renewal or substitution of or for indebtedness now existing, or validly incurred after under the provisions hereof) shall be made by the company or any of its subsidiary companies at any time or for any purpose or purposes without such consent, nor shall the company during said term, part with any of the stocks, leaseholds or franchises without like consent. And there shall be stamped across the face of all certificates of stock and leases held by the company notice that the same are subject to the terms of this agreement, except as otherwise provided in the by-laws of the company, which may be sold from time to time to meet the needs or for the purpose of reinvestment.



Second. In case at any time hereafter the company shall be desirous of making any additions to its existing system by the extension of its old lines or the incorporation of new company, or any additions to its power or equipment, or any betterments to its lines, or any other improvements, the expenditures for which require additional capital and are properly chargeable to capital account, it shall present a communication to the City Councils setting forth the necessity for such extensions, additions or betterments, together with the estimated and probable cost of the same, and a plan for raising the capital necessary to cover the expenditures required for the purpose; but no such plan shall be effective, nor shall the company make any issues of stock or bonds, or incur any liability or liability for the purpose of carrying out said plan until the same shall receive the approval of the city.

NEW LINES

Third. In case at any time in the future Councils shall, either of its own initiative or upon petition of any of the citizens, determine that new lines of surface, elevated or underground railway should be constructed within the City, it shall, by ordinance, determine the route of such line, and the terms and conditions under which it shall be built, financed and operated, and the company shall have ninety (90) days after the passage of such ordinance to take such corporate action as may be necessary to accept the same, certified copies of which action shall be duly filed with the Mayor within said period of ninety (90) days; but if the company shall fail to accept said plan within said period of ninety (90) days, or shall reject the same with said time, or, after accepting the same, shall fail to enter upon the work in good faith and prosecute the same as required in such ordinance, then the City may exercise the right to construct and operate said road under said terms and conditions, by such persons, company or corporation as may be willing to undertake the same. PROVIDED HOWEVER, That any rights acquired by the company under this section, and the section immediately preceding, shall be subject to all the terms and conditions of this contract with respect to a voice in the management, supervision of accounts, division of profits after the return of six (6) per cent. upon the capital invested, and the right to ultimately acquire all the interest of the company at the expiration of fifty (50) years from the date of this contract: AND PROVIDED FURTHER, That in the case of the construction of new lines the capital necessary therefor shall, as far as practicable, be raised upon bond issues bearing the guarantee of the company as to principal and interest, which bonds shall be issued in denominations of one hundred (100) dollars, five hundred (500) dollars and one thousand (1000) dollars, and be offered to public subscription, but in no case shall they be sold for less than par; and to such extent as it may be impracticable to finance new enterprises upon bonds, or in case additional capital is needed for the purpose of extensions, additions and betterments to existing lines, power or equipment the same may be raised by an increase in the capital stock of the company, but only with the express consent of the City, and all such increases shall be full paid at par in cash, and be subject to all the provisions herein contained with respect to the original thirty million (\$30,000,000) dollars of capital stock of the company.





ARTICLE II

FOURTH. The Mayor, ex officio, and two citizens of the City, to be chosen from time to time by the Councils of said City, shall serve for four years and until their successors are elected shall be representatives of the City, be members of the Board of Directors of the Company, and, as such, shall exercise all the powers of directors, and vote upon all questions which may come before the said Board with effect as if they had been duly elected directors of the Company, but without incurring any liability as directors, and the company shall adopt such amendment to its By-Laws as may be necessary to give full effect to this provision.

ARTICLE III

FIFTH The company shall, on or before the first day of October, in each year, beginning in the year 1908, file in the office of the City Controller a full statement of its receipts and expenditures for the preceding fiscal year, ending June 30th, and the City Controller shall thereupon examine the books, accounts and vouchers of the company for said fiscal year for the purpose of ascertaining the correctness of the said reports and report to Councils the result of such examination.

ARTICLE IV

Sixth. The Company shall not declare or pay any dividends to its stockholders beyond a return of six (6) percent. per annum, cumulative from January 1, 1907, on the actual amounts of capital paid into the treasury in cash, calculated from the date of the several payments, without at the same time appropriating from earnings and surplus for paying into the City Treasury a sum equal to that portion of the dividend which is in excess of the said six (6) per cent. return, so that the City shall share with the stockholders equally in all net earnings properly distributable as dividends over and beyond a return of six (6) per cent. per annum, cumulative from January 1, 1907, upon the amount in capital stock of the company.

ARTICLE V

SEVENTH. The Company as the owner of all of the capital stock of the Market Street Elevated Passenger Railway Company, in which company is vested the right to build a subway on Broad Street, and an elevated railway to Frankford, does hereby covenant and agree that said Market Street Elevated Passenger Railway Company will surrender and release to the City the right to build said subway on Broad Street, which surrender the City does hereby accept; and the franchise to construct the said elevated railway to Frankford is hereby confirmed, and the time for the construction of the same is hereby extended to three (3) years from the first day of June, 1907: PROVIDED, HOWEVER, That the building and financing of said road shall be under and subject to all of the conditions in paragraph three hereof: AND PROVIDED FURTHER, That in case a subway on Broad Street should hereafter be constructed either by the City or by any other corporation, the company shall make such arrangement relating to the construction and operation of the same around or under the City Hall, as may be agreed upon by a Board of Directors, one of whom shall be appointed by the City, one by the Company and the



## SINKING FUND





ARTICLE IV

12.11. The company shall, in addition to the other payments herein provided for, during the first full term of ten (10) years next succeeding the date of this contract, pay into the City Treasury in each year the sum of five hundred thousand (500,000) dollars in cash; during the second full term of ten years next succeeding the date of this contract pay into the City Treasury in each year the sum of five hundred and fifty thousand (550,000) dollars in cash; during the third full term of ten years next succeeding the date of this contract pay into the City Treasury in each year the sum of six hundred thousand (600,000) dollars in cash; during the fourth full term of ten years next succeeding the date of this contract pay into the City Treasury in each year the sum of six hundred and fifty thousand (650,000) dollars in cash; during the fifth full term of ten years next succeeding the date of this contract pay into the City Treasury in each year the sum of seven hundred thousand (700,000) dollars in cash; all of which said annual payments shall be paid in equal monthly installments upon the last day of each month, which sums have been fixed, and payments, when made, shall be in lieu and satisfaction of all obligations and liability on the part of the company, and its subsidiary companies, for the paving, repaving and repair of the streets and conduits, and for the lines, the obligation of the company with respect to the removal of snow therefrom, and all license fees with respect to the cars run upon the streets or over the various City bridges or the system of operating said cars, and shall be in lieu of the right of the City hereafter in respect upon the company, or its subsidiary companies, of charges or of charges; but in case any additional streets shall hereafter be occupied by the company by reason of additional surface lines or extensions made under the provision of paragraphs two and three of this contract, then the Chief of the Bureau of Highways, Department of Public Works, shall certify the number of square yards of street paving upon the street paving upon the streets so occupied and the character of such paving, and there shall thereafter be added to the yearly sum to be so paid an amount equal to seven (7) cents per square yard of macadam pavement, eight (8) cents per square yard of asphalt pavement, and six (6) cents per square yard of concrete pavement, or in case the company should at any time with consent of the City abandon the use of any street, then the Chief of the Bureau of Highways, as aforesaid, shall certify the number of square yards of various kinds of pavement upon streets so abandoned, and the annual payment thereafter to be made shall be reduced in the same manner at the rates named above. Nothing herein contained is intended to relieve the company or its subsidiary companies, from taxation upon any class of real estate now taxable, nor from taxation on dividends as provided in their respective charters, nor to effect the matters for which special provision has been made in this contract. To such extent, however, as taxes and assessments not upon such real estate or dividends may hereafter be imposed upon the company for the benefit of the City, the City shall credit upon the sums which shall be divided with and paid to the City out of earnings as provided for in Class 6: PROVIDED, HOWEVER, THAT THE CITY SHALL NOT BE RELIEVED FROM THE OBLIGATION TO REPLACE OR REPAIR ANY STREET REMOVED OR DAMAGED BY ANY CONSTRUCTION OR REPAIR WORK WHICH THE COMPANY MAY UNDERTAKE WITH REFERENCE TO ITS TRACKS OR CONDUITS



ARTICLE IV. - RAILROADS.

ELEVENTH. The City reserves the right to lease all leaseholds and franchises of the company, subject to the business now existing or hereafter lawfully created, or upon the first day of any July thereafter, serving six months notice on the company of its intention so to do, and paying to the company upon the date named in said notice an amount equal to par for its capital stock then outstanding to wit: the thirty million (30,000,000) dollars of capital now authorized plus any additional capital stock issued with the consent of the City hereunder. The fund in the sinking fund, if not theretofore paid over to the City, shall be available to the City for the purpose of making or assisting in making the said payment for the property of the company, and this contract shall continue in force until such right is exercised, but whenever the right is exercised the City shall succeed to all the property, subject, as aforesaid, of all the franchises, leaseholds, rights, property and privileges theretofore vested in the company, and the City may either operate the same or lease the right to operate the same for such terms and upon such conditions as it may deem fit. The rights of the City under this paragraph shall be assignable and may be put up at public auction to the highest bidder therefor. The company reserves its franchise to be a corporation with the power to operate passenger railway systems and may become a bidder for such rights.

DEBTS - CITY NOT LIABLE

TWELFTH. Nothing in this contract contained, and no act lawfully done by the City hereunder, shall in any way constitute the City liable for any of the debts, obligations or liabilities of the company, unless and until it shall exercise in the manner aforesaid the right of purchase nor shall the credit of the City be pledged or loaned to the company, nor shall it become a joint owner or stockholder in the company nor shall the payment to the City of a sum equal to the excess of dividends over and above six (6) per cent. be in any way construed as making it a partner in the enterprise of operating the said system, but said payment is made upon the conditions of this agreement and is on account of additional taxes, assessments and obligations which might otherwise be put upon the company by or for the benefit of the City.

CONSENT REQUIRED.

THIRTEENTH. Whenever hereunder the consent of the City is required it shall only be given by ordinance of Councils.

EXISTING AGREEMENTS CANCELLED

FOURTEENTH. All contracts, agreement and bonds existing between the City and the Company and its subsidiary companies are hereby superseded and cancelled, excepting only the agreement to contribute the sum of four hundred thousand (400,000) dollars to the City toward the expense of removing certain grade crossings, as provided in the ordinance of March 28, 1906, and the agreement entered into under the ordinance of





April 16, 1906, with respect to the ordinance of June 4, 1906, with respect to the postponement of the laying of tracks upon Broad Street.

FIFTEENTH. This contract shall take effect as of July 1, 1907 and one-half of any payments made by the company for license fees for the current year shall be allowed as a credit against the first monthly payments provided for in paragraph ten hereof.

IN WITNESS WHEREOF, The parties have caused this contract to be duly sealed and delivered as of, and to take effect the first day of July 1907.

WITNESSES

Section 2. The mayor is hereby authorized and directed to acknowledge and deliver the said contract on behalf of the city (the contract shall be recorded), and to fill in the blank left for the date in the above agreement.

Section 3. The ordinance entitled "An Ordinance to regulate passenger railway" approved July 7, 1857, together with all supplements thereto, and all other ordinances and parts of ordinances, and all contracts inconsistent herewith are hereby repealed, cancelled and annulled. This repeal to take effect only upon due execution and delivery by both parties of the contract provided for in the first section of this ordinance.

Approved the first day of July, A.D.1907.

(Signed) JOHN A. [illegible]  
Mayor of Philadelphia.



1 9 1 8

1918.  
GLB-28

100 ft. 4 in.



1918

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REPORT OF CITY TRANSIT  
SEPT. BMR 1918.

The activities of the Department in matters of design, as well as construction, were greatly hampered by the loss of a large part of the engineering force of the department through enlistments, the army draft, and the attractions of war work. The depletion of the working force of the department, which began about the middle of 1917, and to which reference was made in the 1917 report of the department, continued throughout 1918, and at the close of the year the payrolls carried the names of 145 employees, 47 were absent in military duty, and the available personnel of the department consisted of but 98 persons. Diagram No. 78 herewith shows the extent to which the engineering force was reduced during the year from the maximum of 1917, reached just prior to the war. These war conditions not only greatly handicapped the planning and construction work of the department, but, also, unexpectedly and completely upset the City's plans for financing the project.

Although but little apparent progress was made during the past year on the City's Program of Transit Development, yet five events of great significance occurred or culminated during the year, the effect of which on the City's transit affairs will be far-reaching and visible for many years. These events were the following:

- 1--The assumption of control over municipal bond issues by the Capital Issues Committee of the Federal Reserve Board, thereby preventing the issue of municipal loans for the purposes not approved by the board.
- 2--The suspension of subway work on the City's System in large degree, and for an indefinite period.
- 3--The execution of a contract between the City and the Philadelphia Rapid Transit Company, which provides for the physical and financial unification of the City's and the Company's Systems, and the operation of a unified system by the company for a 38-year period, under the joint supervision of the said City and Company.
- 4--The approval by the people of the amendment to Section 8 of Article IX of the State Constitution, as a result of which 30 per cent. of the City's entire borrowing capacity is no longer specifically reserved for transit and port developments.
- 5--The increase in interest rate upon City loans.

The immediate effect of these events on the City's Program of Transit Development will be further discussed under appropriate headings.





CONTROL OF THE CITY'S BOND ISSUES BY THE  
FEDERAL RESERVE BOARD

Although the City had in 1915 and 1916 authorized expenditures for High-Speed Development in the total amount of \$63,100,000, the legislation under which the project is being carried out provides that bonds may be sold by the City Controller as needed to meet current construction payments. As stated in the 1917 report of this department, the Controller had sold, previous to January 1, 1918, but \$7,000,000 of these bonds for transit development, all of which, except approximately \$2,500,000, had been expended, and this balance was not sufficient to cover the City's liabilities on outstanding transit contracts. The City contemplated selling, early in 1918, several million dollars more of the bonds authorized for the project. The opposition voiced by the Federal Reserve Board to this contemplated sale of bonds by the City resulted not only in preventing practically any new contracts being awarded during 1918, but, also, in the annulment of several large contracts then under way.

Contracts for construction amounting to only \$134,000 were awarded during the year, and of this amount \$100,000 was not legally executed until January 14, 1919, on account of the depletion of transit funds. Work to the amount of \$2,589,922.49 was done upon contracts awarded in previous years, and to the amount of \$9,060.57 upon the contracts awarded during 1918, making a total outlay of \$2,598,983.06 during the year 1918 upon transit contracts.

The war brought about many unexpected and unprecedented developments in Philadelphia's municipal affairs. The Federal Government, in order to conserve all the national resources for war purposes, exercised its control over industrial and municipal affairs to a degree never before attempted. The War Department commandeered for war purposes a large part of the output of steel mills and all other supplies necessary for construction. The taking over of the railroads by the Government and the embargoes which resulted upon shipments of material for other than war purposes made it exceptionally difficult to obtain material to carry on construction work. In addition, the Federal Reserve Board organized in January a Capital Issues Committee for the purpose of debarring corporations and municipalities from borrowing money in large amounts for any purpose, unless it were decided by the Committee that the construction for which the money was to be borrowed could not be postponed until after the war, and the borrowing of money would not be incompatible with the interests of the United States.

At the beginning of the year the Department had contracts outstanding and under construction which it estimated would require \$5,490,704.28 to complete. In addition, the Department had





outstanding awarded but unexecuted contracts totalling \$6,225,000, upon which no work had been done. These awards, covering two sections of the Broad Street Subway, together with some small contracts on the Frankford Elevated Railway, had not become a legal liability of the City. To meet current payments upon these outstanding contracts, and for engineering, interest, and sinking fund expenditures, the City had cash available, resulting from previous sales of bonds designated for transit development, in the amount of but \$2,565,898.29. Of this amount, \$388,788.39 represented the unexpended balance of the 15 per cent. reserve held by the Controller for interest and sinking fund charges. Engineering costs in connection with the work, and the settlement for real estate which had been condemned was expected to require about \$1,000,000. In order that the City might be in a position to meet its contract obligations and liabilities on account of this transit work, it was apparent that the City must be free to borrow as needed additional money in the amount of at least \$4,500,000. The Department realized that the expenditure of this sum of money, however, would not enable the City's System to immediately render any effective service to the public or assist in any great degree in the winning of the war. The entire list of contracts then outstanding, if and when completed, would not enable any one of the City's High-Speed Lines to be operated; instead these contracts represented only a small fraction of the construction and equipment needed to place each authorized line or route in operation. For instance, in the case of the Frankford Line, the completion of the contracts outstanding on January 1, 1918, amounting only to approximately \$1,134,000, still would leave the first operating section (Arch Street to Bridge Street) uncompleted by approximately \$4,500,000, and in the case of the Broad Street Line and Loop, additional outlay, approximately \$31,000,000 would be required to complete the first operating section to Erie Avenue.

In view, therefore, of the large amount of cash which it was evident the City must provide in order not only to carry on the existing contracts, but to complete the lines sufficiently to make them of commercial value, the Director felt that negotiations must be immediately undertaken with the Capital Issues Committee in order to ascertain their attitude toward the financing of the City's Program of Transit Development and the contracts for which the City was legally obligated. After several conferences held during the early part of the year with the Mayor, City Controller and City Solicitor, at which the City's position was discussed, the Director prepared and transmitted to the Mayor, under date of March 12, 1918, a report outlining the financial and construction program and procedure of the Department during the year, and recommended that the City's immediate financial needs and obligations in order to carry on the authorized plan of transit development be laid before the Capital Issues Committee and a ruling of that body secured as promptly as possible, as to whether the City's transit program was considered to conflict with or be "incompatible with the interest of the national Government." An abstract of this report appears as Appendix A of this report.





Reconizing the great importance of carrying on without interruption the transit plan which the City had authorized and undertaken, and the serious position in which the City would be placed if this work were to be suspended, the Mayor arranged that conferences on this subject should begin at once between local members of the Federal Reserve Board and interested City officials. The first of these conferences took place in the Mayor's office on March 25th. The second conference was at Washington, on March 27th, and others followed at intervals until April 26th, when the Director made a final appeal before the Sub-Committee in Washington.

At the start of these conferences the Capital Issues Committee made it plain that:

- (a) It would not permit the City to enter into any new contracts for construction during the continuance of the war (either to carry on the Transit Program or other work), the completion of which would not be immediate.
- (b) Where existing contracts could be cancelled or work suspended thereon without incurring great loss to the City, the Capital Issues Committee favored such cancellation.
- (c) For the continuation of all municipal construction work regarded by the Committee as incompatible with the interest of the United States, further borrowing by the City would not be permitted.

The Capital Issues Committee also expressed their opinion that since no individual line of the City's System could be shortly completed, the award of contracts for the continuation of work upon the City's Program of Transit Development might well be held in abeyance until after the war; and that wherever possible, work upon existing contracts should be suspended during the war.

The Director believed that the suspension of work for an indefinite period upon existing contracts for work upon the City's High-Speed Lines, and the resumption of work later under the same contracts was not possible from the contractor's point of view, nor desirable from the City's point of view, and felt sure that, under the circumstances, and in view of the unknown duration of the suspension the best solution would be to arrange with the contractors for a cancellation of such contracts as it might be possible to discontinue, upon an equitable basis, and that whenever work should be resumed upon the City's lines it should be upon the basis obtaining at such time or resumption.

The Director believed no attempt should be made to interrupt or cancel any work except such as was not regarded as essential to carrying on war work or such as had only progressed to the early stages.



With these views the Mayor and City Solicitor agreed.

The Director urged that, on account of the status of the Frankford Elevated Line and the great assistance that line could render in relieving the inadequate service then being furnished by the surface cars of the Philadelphia Rapid Transit Company, work should proceed upon that line as fast as possible, and urged that the national Government aid the City in getting it into service. Also, the Director believed that contracts for work underneath the City Hall, then well toward completion, should not be cancelled, as these contracts involved the safety of the building. In the case of those contracts, it was contemplated to omit all work not essential to the protection of the City Hall and deduct from the contract the value of the omitted work, thereby reducing the City's immediate outlay to the lowest amount possible.

The Director accordingly prepared and submitted to the Mayor under date of April 2d, a short statement outlining the status of the different transit projects and giving seven estimates of the amounts of new bonds required to take care of these projects. These estimates were submitted by the Mayor to the Capital Issues Committee, and in order to fully meet the request of the Committee, the seven different assumptions were made as to the degree of suspension of transit work. In taking these estimates under consideration, the Committee expressed its desire to assist to the greatest extent possible under the conditions, but declared themselves unable to permit bond issues by the City for the continuation of such work unless it was clearly demonstrated that the work could be suspended or cancelled only upon such terms as would work great injury to the City.

The Committee at the final hearing on April 26th, requested that the Director furnish full and definite information as to the terms upon which certain parts of the work could be suspended and that an estimate should be submitted of the "irreducible minimum" amount of funds needed to take care of the City's unescapable obligations.

In compliance with this request for further information the Director submitted, under date of May 11th, the following statement of the transit situation, embodying therein a plea for the Committee's approval of a bond issue sufficient to continue the essential sections of that work:

DEPARTMENT OF CITY TRANSIT

Philadelphia, May 11, 1918.

Mr. F. H. Goff, Chairman, Sub-Committee,  
Capital Issues Committee,  
Metropolitan National Bank,  
Washington, D. C.





Dear Sir:--In accordance with the understanding reached at my recent interview with your Sub-Committee, I have discussed your attitude in regard to new bond issues for transit purposes with Mayor Smith, other City officials, and the contractor, and have endeavored to have your recommendations carried out, namely:-- Work suspended upon the City's subway construction and contracts in connection therewith cancelled, if possible. I send you herewith copy of "Appendix No. 81, Journal of Common Council," which contains all the recent correspondence relating to this subject, and the resolution which was introduced into City Councils on May 2d by the Mayor, authorizing the suspension of the construction of the contracts above referred to.

This resolution has been referred to the Finance Committee and it is expected that action upon it by Councils will be had at the next meeting on May 16th. Based upon the terms of settlement for cancellation of Contracts Nos. 201, 203 and 16, as stated in the contractor's letter of April 30th attached, I have prepared and submit herewith a statement showing the cash requirements to close up the subway work, leave it in a safe condition, and complete the Frankford Elevated sufficiently to permit of its initial operation. This statement (marked No. 2) shows that the bond issue necessary to accomplish this will be approximately \$4,115,000, which is fully \$600,000 less than would be necessary to simply complete the outstanding contracts now under way. The estimated bond issue necessary to complete the outstanding contracts is \$4,730,000, and this amount would not complete the Frankford Elevated sufficient for its operation. The issue of \$4,115,000 required to carry out the plan now proposed involves the cancellation of existing subway contracts of a total face value of \$2,920,00, and the substitution of new contracts to the amount of only \$1,745,000 on the Frankford Elevated. From these statements it is evident that even if the subway work be suspended as suggested, and closed up as soon as possible, a bond issue of approximately \$2,100,000 of thirty-year bonds will be required to meet the City's obligations.

To arrange for the operation of the Frankford Elevated according to the plan herein proposed only approximately \$2,000,000 additional will be required, \$900,000 of which should be thirty-year bonds, and \$1,100,000 fifty-year bonds.

When it is realized that Philadelphia is growing at an accelerated rate, due to it being a huge workshop of war supplies, that it has been over ten years since Philadelphia's only rapid transit line was completed, that the City has been at work on the Frankford Elevated Line since August, 1915, and has spent a large sum thereon, that this outlay will be of no use to the public unless the line can be placed in operation, and that it may be many years before the City can secure any of its proposed and authorized Rapid Transit System, except the Frankford Line,



the vital importance and necessity of getting that line into service as soon as possible must be recognized.

As shown by the accompanying photographs, the Frankford Line is well advanced towards completion. New York is apparently being allowed to proceed with the completion of lines partly built, and the New York papers of May 8th state the Public Service Commission of New York, on the day previous, had awarded contracts for transit work totalling over \$1,120,000.

Under the existing circumstances the City does not urge the approval by the Committee at this time of the authorized outlay of \$40,000,000, or more, necessary to complete the Broad Street System of subways, but earnestly prays for the approval of an issue needed to care for the work already done, and the small sum necessary to get its first and most important line into operation. That line can render a service to the City and nation in conserving the time and health of the citizens many times the value of the small outlay.

I enclose maps, diagrams, and photographs which will show the status of the undertaking, and if I have not given all the information needed, I trust that you will command me further.

Hoping for your favorable consideration of this matter and the approval by your Committee of the issue of \$4,115,000 for transit in the near future, I remain

Very truly yours,  
(Signed) WM. S. TWINING,  
Director.





STATEMENT NO. 1--EXPENDITURES FROM \$6,000,000 AND \$57,100,000 LOANS  
(To May 1, 1918)

	Expenditures			
	Actual to April 1, 1918		Estimated	
			During April	To May 1, 1918
<hr/>				
\$6,000,000 30-year loan				
Payments to Contractors:				
Frankford--No. 501	\$150	154 63		
No. 503	38	903 34		
No. 511	254	000 33		
No. 518	1 442	102 91		
No. 519	238	458 69		
No. 520				
<hr/>				
Frankford--Total	\$2 123	619 90		\$2 123 619 90
Broad Street Subway--				
No. 101	1 344	490 50	\$60 000 00	1 404 490 50
<hr/>				
Total payments to con-				
tractors--30-year loan	\$3 468	110 40	\$60 000 00	3 528 110 40
Engineering and miscell-	636	902 02	19 644 75	656 546 77
aneous				
<hr/>				
Total payments--				
30-year loan	\$4 105	012 42	\$79 644 75	\$4 184 657 17
<hr/>				
\$57,100,00 50-year Loan				
Payments to contractors:				
Frankford--No. 528	\$47 001	60	\$7 449 30	\$54 450 90
No. 533	450	58		450 58
No. 534	1 198	51		1 198 51
<hr/>				
Frankford--Total	\$48 650	69	\$7 449 30	\$56 099 99
Broad Street Subway--				
No. 102	352	640 35	25 000 00	377 640 35
Loop Subway--No. 201	54	609 75	24 120 10	78 729 85
No. 203	73	963 5	40 249 83	114 213 41
<hr/>				



Total payments to con-	:	:	:	:
tractors--50-year loan	:	\$529 864 37	\$96 819 23	\$626 683 60
Engineering and miscella-	:	:	:	:
neous	:	16 834 31	1 836 38	18 670 69
Interest and sinking fund	:	:	:	:
charges	:	219 952 75	:	219 952 75
<hr/>				
Total payments--50-year	:	:	:	:
loan	:	\$766 651 43	\$98 655 61	\$865 307 04
<hr/>				
Total expenditures--	:	:	:	:
both loans	:	:	:	\$5 049 964 21

BONDS SOLD AND CASH AVAILABLE

\$6,000,000--30-year loan	\$3 000 000
57,100,000--50-year load	4 000 000
<hr/>	
Total receipts	\$7 000 000
Total expenditures	5 049 964
<hr/>	
Balance	\$1 950 036
Reserved and held by Controller for interest and sinking on 50-year bonds (balance of 15% of issue)	380 047
<hr/>	
Cash available for construction (as of May 1, 1918)	\$1 569 989





STATEMENT NO. 2--ESTIMATED CASH REQUIREMENTS AS OF MAY 1, 1918, OF  
TRANSIT PROGRAM DESIGNED TO CONFORM TO COMMITTEE'S  
RECOMMENDATION.

		Net Amount required
<hr/>		
Construction:		
1. City Hall station--Contracts Nos. 101 and 102:		
Cost--as adjusted	\$2 900 000	
Paid to date	1 782 000	
	<hr/>	
Balance to be paid		\$1 118 000
2. Thompson Street sewer:		
Balance to be paid (contract to be cancelled)		25 000
3. Broad Street subway--Contracts		
Nos. 103 and 204:		
Cost--as adjusted (withdrawal of award)		32 000
4. Delivery loop--Contracts Nos. 201 and 203:		
Cost--as adjusted (contracts to be		
cancelled)	943 000	
Paid to date	193 000	
	<hr/>	
Balance to be paid		750 000
5. Frankford Elevated to Bridge Street:		
Cost--as adjusted to minimum outlay	\$4 875 000	
Paid to date	2 180 000	
	<hr/>	
Balance to be paid		2 695 000
(see Statement No.3)		
Real estate--Condemned but not paid for		500 000
Engineering and miscellaneous--to Dec. 31, 1919		
20 months at \$20,000		400 000
Interest and sinking fund charges--on new		
50-year bonds--15% on \$1 115 000		165 000
<hr/>		
Total cash requirements of City for transit		
(1918-1919)		\$5 685 000
Cash applicable to above (see Statement No. 1)		1 570 000
<hr/>		



Bond issue necessary

: \$4 115 000  
:

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Note:--Of this total bond issue of \$4,115,000 about \$2,500,000 would be required during 1918, the remaining \$1,600,000 being required during 1919. In this statement, in order to make the cash requirements as small as possible, it has been assumed that the first \$3,000,000 sold out of the total bond issue of \$4,100,000 will be the 30-year bonds (now authorized) on which interest and sinking funds are not to be capitalized (See Statement No. 1.)





STATEMENT NO. 3--ESTIMATED MINIMUM OUTLAY FOR CONSTRUCTION OF  
FRANKFORD ELEVATED LINE TO PERMIT LINE TO BE INITIALLY  
OPERATED--(Operation of line by Philadelphia Rapid  
Transit Company assumed)

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Completion of concrete deck (Contract No. 528)	\$950 000
Track, special work, ballast, 3d rail, etc.	600 000
Six stations with temporary wooden platforms	480 000
Connection to Market Street subway at Front and Arch Streets	290 000
20 cars, including trucks, motors and electrical equipment	375 000
<hr/>	
Total	\$2 695 000

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NOTE:--

Signals omitted except at Front and Arch Streets.

Yards and shops omitted: It has been assumed that yard and shop of Market Street line can take care of these additional cars.

Cars reduced from 50 in former estimate to 20. Thirty (30) reserve cars owned by Philadelphia Rapid Transit Company to be utilized on this line.

Six (6) of less important stations omitted: The six to be built are at junction points with important transfer lines.

Temporary wooden platforms and connections to station buildings to be used to save use of steel, as it is estimated the temporary structure will last for at least five years.

In connection with statements Nos. 1 and 2, I may explain that, under an amendment to the State Constitution adopted by the people in November, 1915, the City is authorized to issue fifty-year bonds for transit improvements and

"Such obligations may be in an amount sufficient to provide for, and may include the amount of the interest and sinking fund charges accruing and which may accrue thereon throughout the period of construction and until the expiration of one year after the completion of the work for which said indebtedness shall have been incurred; and said city shall not be required to levy a tax to pay said interest and sinking fund charges, as required by Section 10, Article IX of the Constitution of Pennsylvania, until the expiration of said period of one year after the completion of such work."

When the \$4,000,000 fifty-year loan shown on Statement No. 1 was borrowed for transit purposes it was estimated that the interest and sinking fund requirements during the construction period might amount to 15 per cent. of the face of the loan, and the City Controller has, therefore, set aside 15 per cent. of this



loan or \$6000,000 for this purpose, leaving \$3,400,000 available for construction.

On Statement No. 2, the same reservation has been made on the \$1,100,000 of fifty-year bonds, assuming that only the balance required above the \$3,000,000 of the thirty-year bonds authorized will be issued as fifty-year bonds.

This balance of \$3,000,000 of thirty-year bonds is shown on Statement no. 1, \$6,000,000 having been authorized and \$3,000,000 having been sold.

On June 4th the Mayor was informed of the Committee's final decision on the City's application as evidenced by the following letter:

Sub-Committee on Capital Issues

Philadelphia Federal Reserve District

Philadelphia, June 4, 1918.

Hon. Thomas B. Smith,  
Mayor of the City of Philadelphia.

Dear Sir:--I take pleasure in advising you that the Capital Issues Committee has passed on the issue of \$4,100,000 of bonds, the authority to issue which you recently made application.

The Committee asks us to advise you of its decision and to request you to send to it the proper description of the bonds, which should include name, date, dates of maturity, rate of interest and serial numbers. Upon receipt of this information the Committee will forward you its formal opinion.

Yours very truly,

(Signed) R. L. AUSTIN.  
Chairman.

The Controller, as of November 1, 1918, sold \$2,000,000 thirty-year 4-1/2 per cent. bonds of the loan authorized June 30, 1915 for transit development.

#### ARRANGEMENTS FOR THE SUSPENSION OF "NON-ESSENTIAL"

##### SUBWAY WORK

Previous to this official action by the Committee the Director became convinced that the majority of its members were strongly opposed to the continuation of work by the City on certain subway contracts, the completion of which the Committee held to be "non-essential to the winning of the war," and he therefore proceeded to make arrangements for the suspension of such work, along lines indicated by the Committee.





RESOLUTION

Authorizing the suspension of construction and the cancellation of contracts for work on the Arch Street and Locust Street sections of the subway, know as Contracts Nos. 201 and 203, and the Thompson Street Sewer contract, known as Contract No. 16, requesting the return of contracts for subway sections on Broad Street, north and south of City Hall, known as Contracts Nos. 103 and 204; authorizing the Mayor, City Solicitor, and Director of the Department of City Transit to adjust with the contractors all claims for damages by reason of the suspension of said work, and the annulment of the contractors; authorizing the Director of the Department of City Transit to protect the work already completed, and place Arch, Locust and Thompson Streets in a safe and passable condition; and directing the presentation of this resolution to the Mayor for his approval or disapproval.

WHEREAS, After several conferences of City Officials with the Capital Issues Committee of the Federal Reserve Board it is believed that no further borrowing of money for continuing subway work will be permitted until after the termination of the war;

AND WHEREAS, The balance of funds still on hand for transit work should be held to meet the obligations of the contracts under City Hall and the Frankford Elevated Railway rather than spending the money on work which can only be partially completed at this time;

AND WHEREAS, Subway work on Arch and Locust Streets and the Thompson Street Sewer are in course of construction, while the contracts for the subway on Broad Street, immediately north and south of City Hall, have never been executed on behalf of the City;

AND WHEREAS, A continuation of these contracts would result in doing work which could not be used until after large expenditures were made, thus entailing on the City the expense of interest and sinking fund charges on loans without any increase in transportation facilities or valuations of taxable property until the whole system is completed;

AND WHEREAS, After a careful study of the present situation relative to these contracts, and in order to conform to the exigencies arising from war conditions, the Director of the Department of City Transit has recommended to the Mayor the cessation of all work on subway construction excepting the portion under City Hall;

AND WHEREAS, It is believed that a just and equitable settlement can be arranged with the contractors; therefore,

Resolved, By the Select and Common Councils of the City of Philadelphia, That the Mayor and the Director of the Department of City Transit be authorized and directed to annul and cancel Contract No. 201, for subway construction in Arch Street, Contract No. 203, for subway construction on Locust Street, and Contract No. 16, for sewer construction in Thompson Street, and that they be further authorized



to request the return to the Department of City Transit, 201 and 204, for the construction of the subway on Broad Street, north and south of City Hall;

Resolved, That the Mayor, City Solicitor, and Director of the Department of City Transit be authorized to negotiate and settle any claims which may be made by the contractors for the discontinuance of the said work. Upon the adjustment of any or all claims for damages by reason of the annulment and return of said contracts, the Director of the Department of City Transit be authorized to draw, and the City Controller requested to countersign, warrants for said amount and charge the same against the appropriations to the Department of City Transit for the construction of the various sections;

Resolved, That the Director of the Department of City Transit be authorized and directed to protect from deterioration the work already completed and to place the portions of Arch, Locust and Thompson Street torn up in a safe and passable condition, and pay for said work from any balances available in the appropriation to the Department of City Transit.

Resolved, That the Clerks of Councils be directed to present this resolution to the Mayor for his approval or disapproval.

This resolution was referred to the Finance Committee and that Committee, after open hearings, changed the resolution into an ordinance, which was reported favorably to Councils at the June 20th meeting. This ordinance was further amended by the provision "that no settlement or agreement shall be entered into upon any of the aforesaid contracts until such settlement or agreement shall be reported to Councils for approval or rejection. In this amended form the ordinance was passed on June 20th and approved by the Mayor on June 26, 1918. (See Appendix E.)

It was clearly set forth in this ordinance that the main object sought was to minimize the City's outlay of money on projects regarded as "non-essential for winning the war." The Director assumed that as each day's delay in suspension of work only increased the City's outlay, with no advantage to the City, a definite agreement with the contractor should be reached as soon as possible.

The evident purpose of the ordinance was to conserve funds for the City and not for the relief of or for insuring a profit to the contractor. The City Solicitor therefore ruled that the annulment of the contracts affected was not mandatory, but must be by agreement, upon terms satisfactory to the City and contractor, and was only authorized in case a real and substantial saving of money to the City could be shown.





On June 28th, therefore, the Director submitted to the Mayor and City Solicitor a preliminary statement suggesting and outlining a method for carrying this ordinance into effect. At a meeting held on July 1st, the Mayor, City Solicitor and Director, acting as the Committee constituted under this ordinance, formulated and addressed the following letter to the Keystone State Construction Company:

Philadelphia, July 1, 1918.

Keystone State Construction Company,  
Franklin Bank Building,  
Philadelphia, Pa.

Gentlemen:--An ordinance, "Authorizing the suspension of construction and the cancellation of contracts for work on the Arch Street and Locust Street sections of the subway, known as Contracts Nos. 201 and 203, and the Thompson Street Sewer contract, known as Contract No. 16," has been passed by Councils and signed by his Honor the Mayor.

A meeting was held in the office of the Mayor today for the purpose of discussing matters covered by the ordinance. Inasmuch as this ordinance is not mandatory and contemplates an agreement between the contractor and the City as to all matters covered therein, the Committee desires to ask you whether or not you are ready and willing to agree to the cancellation and termination of the above contracts in accordance with the ordinance, subject to the approval of Councils as to the time, payment and the manner thereof.

In this connection the Committee desires to have your views in writing as to what terms you think a settlement made with you should embody in order to be "just and equitable," and, particularly, what, if any, profit should be allowed you upon the basis that these contracts are cancelled or determined. In our judgment, termination of these contracts can be done under this ordinance only by mutual consent. You will understand, of course, that the proviso attached to this ordinance says:

"That no settlement or agreement shall be entered into upon any of the aforesaid contracts until such settlement or agreement shall be reported to Councils for approval or rejection,"

and, in our judgment, the only way in which this matter can be disposed of in view of that proviso is on the basis of a tentative agreement between the Committee and your Company, subject to the final approval or rejection by Councils, at a date to be mutually and tentatively agreed upon.



Should you be willing to tentatively agree with the Committee it will be desirable for you to submit as soon as possible a full and complete statement, in detail, of all claims showing approximately the amount of money to be paid you in settlement of each contract, as of a given date. It is to be assumed, of course, that any figures or statements submitted by you in connection with this matter are to be subject to verification and are not binding on the Committee, except and until they are satisfied with the accuracy and correctness thereof. We will be pleased to hear from you at the earliest possible moment.

Very truly yours,

(Signed) THOMAS B. SMITH,  
Mayor--Chairman.

(Signed) JOHN P. CONNELLY,  
City Solicitor.

(Signed) WM. S. TWINING,  
Director, Department of City Transit.

The following reply was received on July 2d, from the Keystone State Construction Company:

KEYSTONE STATE CONSTRUCTION COMPANY

GENERAL CONTRACTORS

FRANKLIN BANK BUILDING

Philadelphia, July 2, 1918.

Hon. Thomas B. Smith, Mayor--Chairman,  
Hon. John P. Connelly, City Solicitor,  
Hon. Wm. S. Twining, Director, Department of City Transit,

Gentlemen:--We are in receipt of your letter of yesterday's date referring to an ordinance recently passed by City Councils and signed by His Honor the Mayor, "Authorizing a suspension of construction and the cancellation of contracts for work on the Arch Street and Locust Street sections of the subway, Known as Contracts Nos. 201 and 203, and the Thompson Street Sewer contract, known as Contract No. 16, etc., etc.," and alluding to a meeting of the Mayor, City Solicitor, and Director of the Department of City Transit in connection with the subject held yesterday.

After reciting the inability of the City to borrow further money for this work, owing to the decision of the Capital Issues Committee of the Federal Reserve Board, and that the balance of funds on hand for transit work should be held to meet the obligations of the contracts for work under the City Hall and upon the Frankford Elevated Railway, and after reciting further that the Director of the Department of City Transit had recommended to the Mayor the cessation of all work on subway construction, excepting the portion under





City Hall, the ordinance mentioned provides:

SECTION 1. That the Select and Common Councils of the City of Philadelphia do ordain, That the Mayor and the Director of the Department of City Transit be authorized and directed to annul and cancel Contract No. 201, for subway construction in Arch Street, Contract No. 203, for subway construction in Locust Street, and Contract No. 16, for sewer construction in Thompson Street, and that they be further authorized to request the return to the Law Department of Contracts Nos. 103 and 204, for the construction of the subway in Broad Street, north and south of City Hall; and

"SECTION 2. That the Mayor, City Solicitor and Director of the Department of City Transit be authorized to negotiate and settle any claims which may be made by the contractors for the discontinuance of the said work, upon the adjustment of any and all claims for damages by reason of the annulment and return of said contracts, etc."

You will perceive that this ordinance does not submit to this Committee the question of the cancellation of the contracts. It first authorizes and directs annulment and cancellation, and then provides that the Mayor, City Solicitor, and Director be authorized to negotiate and settle any claims that may be made by the contractors for the discontinuance of said work, adding the provision "that no settlement or agreement shall be entered into upon any of the aforesaid contracts until such settlement or agreement shall be reported to Councils for approval or rejection."

If our conclusion be correct, that this ordinance is not mandatory on the Mayor and the Director to annul the contracts, then we cannot enter upon any negotiations for cancellation without assurance, which you are unauthorized to give, as to when or how we will be dealt with in the matter of our legal rights. If, however, Councils contemplated a cessation of work under these contracts it would seem that at the earliest possible moment it should be so ascertained to the end that the cost and expense to the City may be curtailed.

Unless it be definitely fixed that the City does not intend to carry out these contracts and, until we have a positive refusal of the City to perform its part thereof, it is impossible for us to present any detailed statement of the conditions of these contracts or of the amount actually due, inasmuch as each day that we continue to work brings a change in conditions, and because, until we receive such definite notice, it is impossible for us to make any arrangements with the sub-contractors who are supplying materials and equipment.

Yours truly,

KEYSTONE STATE CONSTRUCTION COMPANY,

(Signed) J. H. LOUCHHEIM,  
President.



Following this correspondence, several conferences took place between the contractor and members of the Committee with the result that, on the eleventh day of July, an agreement for the suspension of work under certain contracts was entered into between the contractor and the Committee which provided:

- 1st--From and after July 16, 1918, and until Councils shall have taken action in the matter, work should be suspended upon Contracts Nos. 16, 201 and 203, excepting such work as should be necessary to restore the streets open at that date. The restoration work to be done by the contractor at actual cost, without profit.
- 2d---Immediately after July 16, 1918, the City should have an audit made of the contractor's books.
- 3d---Upon the City and contractor reaching an agreement as to terms for cancellation and settlement of the contracts, the City should compile a report embodying the agreed terms and submit it promptly to Councils for approval or rejection.
- 4th--If terms of settlement as submitted should be rejected by Councils, the contractor was to resume work under the respective contracts without prejudice to his rights and as though the suspension had not taken place.

#### THE OFFICIAL AUDIT OF THE CONTRACTOR'S BOOKS

Under the provisions of the second article of this agreement the Director, at the suggestion of the Controller, arranged for a complete audit of the Keystone State Construction Company's accounts relating to these contracts. By and with the advice of the City Controller, the firm of Lybrand, Ross Brothers & Montgomer, certified public accountants were employed by the Director to make such audit and, under date of September 9, 1918, their report was rendered to the Mayor as Chairman of the Committee.

#### THE REPORT TO COUNCILS UPON THE TERMS OF CANCELLATION OF CONTRACTS

Upon receipt of this report of the Auditors the Committee prepared a full statement, which the contractor agreed to accept, recommending the terms of settlement for the cancellation of the three contracts which were legal obligations of the City, viz.:

- No. 16--Thompson Street Sewer.
- No. 201--Arch Street Subway.
- No. 203--Locust Street Subway.





The unexecuted contracts were to be covered by a separate report of the Committee. This full statement (page 246) and a draft of an ordinance ratifying and approving the terms of settlement (page 245) were submitted to Councils by the Mayor on October 3d (page 243).

The ordinance was referred to the Finance Committee, and, after open hearings, it was reported with a favorable recommendation to Councils on October 28th (see Appendix C, page 271). On October 22d the Committee of Settlement submitted to Councils a further report covering the two contracts on Broad Street, which had been awarded the Keystone State Construction Company, but which had never been executed by the City. Accompanying this report was an ordinance approving the report and authorizing and directing the Committee to make settlement with the contractor in amount not exceeding \$41,000. This report and ordinance was referred to the Finance Committee, and this Committee on November 1st returned the ordinance with a favorable recommendation. (See Appendix C, page 272.)

#### FINAL APPROVAL BY COUNCILS OF TERMS OF CANCELLATION OF CONTRACTS

On November 21st, both branches of Councils, without a dissenting vote, passed the ordinances approving the reports of the Committee upon the cancellation of the five Keystone State Construction Company contracts (Nos. 16, 103, 201, 203 and 204) and providing for the settlement thereby made necessary. On November 26th these ordinances were approved by the Mayor. The City's cash requirements under these contracts were thereby reduced approximately \$8,000,000, as the estimated outlay on account of these contracts will probably not exceed \$1,400,000 instead of \$9,400,000, as contemplated when awarded.

Contracts Nos. 204 and 103 were returned to the City Solicitor on December 3, 1918, and on the same date payment was made to the contractors in the sum of \$310,429.29. Of this payment, \$261,005.29 represented the sum agreed upon as due the contractors in settlement of Contracts Nos. 201 and 203, as of July 16, 1918, under the agreement of cancellation, \$8,424 in settlement of Contract No. 16, and \$41,000 to reimburse the contractor for material delivered and losses sustained by the withdrawal of the award of Contracts Nos. 103 and 204.

The cancellation of Contracts Nos. 16, 201 and 203 to take place only when final payments were made thereon.

#### STATUS OF CONSTRUCTION WORK UPON THE CITY'S LINES

##### (A) Broad Street Line.



Diagram No. 3875 (page 186) shows the status of work upon the Broad Street Line at the beginning of 1918. Contract No. 103, running from the City Hall to Buttonwood Street on the north, and Contract No. 204, running from City Hall to South Street on the south, had been awarded to the Keystone State Construction Company on July 25, 1917, but were still unsigned by the City officials at the beginning of the year.

Before the year 1917 expired it became evident that the direct and consequent effects of the war would greatly hamper the City's proposed construction program and might delay it for a considerable period. The section of the Broad Street Line from South Street to Buttonwood Street, even if it could have been built, would be, when finished, of no commercial value unless the remainder of the First Operating Section could be constructed, namely the portion between Buttonwood Street and Erie Avenue. Therefore, the City conceded the logic in the request of the Capital Issues Committee of the Federal Reserve Board that the City withdraw the award of the two unsigned contracts, and this was accordingly done (see page 237). No work had been done upon these contracts but the contractor, in anticipation of proceeding with the work, had purchased certain materials, a portion of which became the property of the City by the terms of settlement (see page 274). Work on the subway beneath the City Hall, known as Contracts Nos. 101 and 102, continued throughout the year without interruption. The progress made on these contracts from the beginning (September 13, 1915) to the end of the year is shown by Diagram No. 99. This diagram shows that during the year payments were made on account of this work to the amount of \$838,037.08, and the total payments from the beginning have amounted to \$2,302,715.67, of which \$842,831.95 represents the cost of reconstructing the foundations of the City Hall. It will be noted from the diagram that the rate of progress on this work has been fairly uniform, and at the end of 1918 the contract was 74 per cent. completed. As the larger part of the tedious and difficult work of underpinning has now been finished it is expected that this section will be completed during the year 1919.

(B) The Deliver Loop.

Diagram No. 101 shows that at the beginning of the year Contract No. 201, 2,024 feet in length on Arch Street, and Contract No. 203, covering 1,996 feet on Locust Street, were under construction. Progress Diagram No. 100 shows the rate of expenditure and progress made upon this work during the year. Work by the contractor under the contracts was suspended July 16, 1918, under the agreement of cancellation (see page 256), but certain necessary work was continued. This agreement of cancellation provided that the contractor should close up the work and restore the streets on the basis of actual cost without profit, and such work continued during the remainder of the year. As of December 31, \$513,801.60 had been expended upon Contract No. 201 and \$579,077.66 upon Contract No. 203. According to the contractor's estimates the streets should be restored and the contracts formally cancelled in May of 1919. On Diagram No. 101





is shown the location and extent of the completed portion of these contracts as of date of cancellation.

The 389 linear feet of subway to be completed on Arch Street represent 19.2 per cent. of Contract No. 201, and the 580 linear feet on Locust Street represent 29.1 per cent. of Contract No. 203. The completed work will be standard in every way and the ends will be buklheaded off and street surface and paving restored, Practically all the steel needed for the completion of these two contracts had been fabricated at the Pottstown works of the contractor at the time of the agreement to suspend work, and in settlement with the contractor the City assumed and took over this sub-contract. Except for the portion placed in the completed parts of the work, this steel is now stored at Pottstown, on property leased to the City. As this steel consists of standard roof beams and columns it will be available for use in any future subway contract whenever the City may decide to resume such construction.

(C) . The Thompson Street Sewer.

This was a pre-war contract, known as Contract No. 16, upon which work began on November 20, 1916. Contract work was suspended July 16, 1918, under the suspension agreement of July 11, 1918 (see page 256), and the contract was formally cancelled and the final payment made January 23, 1919. At that time the sewer was completed from its eastern connection at Seventh and Thompson Streets to west of Tenth Street, a length of 1,793 feet, or 54.4 per cent. of the total length covered by the contract.

(D) The Frankford Line.

During the year work on this line was confined chiefly to the concrete deck and station buildings (see reports of Chief Engineer and Division Engineer for details). Diagram No. 98 shows the progress of construction and the amount expended upon this line by months, from the beginning of work in 1915 until the end of 1918. It also shows the minimum estimated cost of completion of a line to Bridge Street and the rate at which the expenditures will be made during the year 1919, and the rate at which money must be borrowed to meet the contemplated expenditures.

In this diagram no account has been taken of expenditures for real estate or easements acquired by the City for the construction of the line. These items are estimated to cost at least \$500,000 and as of December 31, 1918, the City had paid on account of these items \$121,803. Payments on account of these items are made from the special item (No. 217) of the June 29, 1916, loan, set aside for real estate and easements.



It should be noted that the cost of the line to Bridge Street only (which forms the First Operating Section) is estimated to be \$7,900,000, or \$500,000 in excess of the amounts which have been appropriated "toward the construction and improvement" of the whole line to Rhawn Street. It is hoped that this amount of funds from the loan of June 30, 1915, can be transferred from the appropriation to the City Hall Section to complete the Frankford Line to Bridge Street; otherwise a new loan will have to be authorized by the people.

(E) Cars and Operating Equipment for the Frankford Line.

The contract for the operation of the City's System by the Philadelphia Rapid Transit Company, which was executed on February 18, 1918, and which is awaiting the approval by the Public Service Commission before becoming effective, provides that "the Company shall provide the following Transit Facilities for use upon or in connection with the City's Transit Facilities:

- (a) Low-tension feeders, both positive and negative.
- (b) High-tension cables, ducts and conduits, transmission lines and connections, including poles, wires and such appurtenances as may be necessary for the operation of the City's System.
- (c) Power stations, sub-stations and real estate necessary therefor.
- (d) Telephone and any other apparatus for communication.
- (e) Lighting fixtures and wiring for stations and tunnels.
- (f) All station equipment. This includes turnstiles, gates ticket booths, and all furnitures and fixtures needed in the operation of the stations.
- (g) Such shop tools, machinery, and other miscellaneous items as may be specified by the Board."

The contract provides, without qualification, that the Company shall furnish the above items. In addition, the Director, with the approval of Councils, may require the Company to furnish storage yards, shops, car houses and real estate necessary therefor, together with the cars needed to operate any operating section of the City's System, except the first operating section of the Frankford Line, to the extent that the City shall be unable to complete such equipment owing to lack of borrowing capacity at the time and providing:

1st--That the Company can secure the money upon the terms approved by Councils, and

2d--That the City shall, if it can legally do so, agree to purchase such equipment at cost from the Company, out of the first money which the City shall be able to borrow for transit facilities.





The Company's liability for this additional equipment has been limited to \$3,000,000, and attention is called to this feature of the contract at this time because of its effect upon the operation of the Frankford Line. As has been said elsewhere, the amount that has been appropriated for the construction and improvement of the Frankford Line is \$7,400,000, excluding the item of real estate, which is provided for by a separate item. It is also stated under (D) that a balance of \$500,000 unexpended upon the City Hall Station can be transferred to the Frankford Line by ordinance of Councils. The amount thus available for the completion of the line will be approximately \$7,900,000.

In the estimate upon which Diagram No. 98 has been based this sum has been divided, \$6,825,000 for construction, engineering and interest, and \$1,075,000 for cars, shops, yard and signals.

Based on present estimates of traffic and on the present prices of cars, the allowance of \$750,000 will be insufficient to provide the cars required to meet the requirements of the line, even at the start, and it seems now that a further loan for this purpose must be inevitable. Although the contract for operation has been signed over ten months, the Company has made no move towards supplying the power, cable, conduits, etc., required for the operation of the Frankford Line, which they are to furnish under the contract. The Company evidently is unwilling to proceed under the contract or assume financial obligation for this equipment in advance of the approval by the Public Service Commission of the contract. It is estimated by the Department that it will require upwards of a year to procure and install the necessary power and distribution system for the operation of the line, and as just stated, this period must apparently begin to run from the date of the approval of the operating contract.

The time needed for the City to secure cars should not exceed the time required by the Company for the installation of its portion of the equipment. The Department is, therefore, proceeding upon the plan that the completion of the elevated structure is first to be provided out of funds now available, and if any cash remains after providing for such construction it should be applied towards the purchase of cars and other equipment.

The estimated cost of the Frankford Line to Bridge Street, complete with initial equipment and ready for operation, including interest and sinking fund charges to the extent of 15 per cent. upon expenditures made from fifty-year loans, is now placed at a minimum of \$9,000,000, of which \$8,400,000 must be furnished by the City and \$600,000 by the Company. Transfer of funds or a further bond issue of \$1,600,000 must be provided before the line can be operated. The City has expended but \$3,444,000 on this line as of December 31, 1918, or but approximately 38 per cent. of the money required to place the line in operation.



## CONSTRUCTION SCHEDULES

In the 1917 Report a construction schedule for the City's System was published which was based on the assumption that no delay would occur due to difficulty of awarding further contracts or securing the money required for construction, and that the lease of the City's System would be approved by the Public Service Commission without delay. The developments of the year 1918 demonstrated that this assumption could not be realized and that a general schedule of construction for the entire City System can not be laid down at the present time in view of the uncertainties surrounding the situation. However, a schedule, Diagram No. 97, has been prepared for the Frankford Line on the assumption that the Public Service Commission will ratify the lease between the City and the Philadelphia Rapid Transit Company not later than the first of next month, and although the Department regards the diagram as being based on optimistic assumption it is given out herewith in order to show the possibilities under conditions which may obtain in 1919. This schedule of construction agrees with Diagram No. 98 and is based on the same assumptions.

### STATUS OF THE CONTRACT FOR THE OPERATION OF THE CITY'S SYSTEM

#### (A) Approval by Councils of the Form of Contract.

As stated in the report of this Department for the year 1917, the ordinance authorizing the contract between the City of Philadelphia and the Philadelphia Rapid Transit Company was passed by Common Councils 63 yeas to 8 nays on December 31; was concurred in by Select Council, 37 yeas to 4 nays on January 3, 1918; and was signed on the same day by the Mayor. This ordinance, as signed, appears as Appendix B-3 of the 1917 Report.

#### (B) Ratification by Company's Stockholders.

On January 20 the Directors of the Philadelphia Rapid Transit Company, at their regular January meeting, formally approved the terms of the contract and ordered that it be submitted to the Company's stockholders at a special meeting called for that purpose. Such special meeting of the stockholders was called for February 8, 1918, and thereat the stockholders voted 332,077 shares in favor of the acceptance of the contract and 47,271 shares opposed to its acceptance by the Company.

#### (C) Contract Signed by City and Company.

The contract was, therefore, formally drawn up and on February 18th President Thomas E. Mitten, acting for the Philadelphia Rapid Transit Company, and the Mayor, acting on behalf





of the City, executed the contract in the Mayor's office.

(D) Contract Submitted to Public Service Commission for Approval.

On February 26th the petition of the City and the joinder of the Philadelphia Rapid Transit Company requesting approval of the contract was forwarded to the Public Service Commission at Harrisburg.

(E) Public Hearing by Commission on Contract.

The Public Service Commission announced public hearings would be held prior to the approval of the contract and set the date for the first hearing in Room 496 City Hall, Wednesday, March 27, 1918, at 10 A.M. At this hearing the former Director, represented by his attorney, Thomas Raeburn White, Esq., filed a brief in opposition to the approval of the contract. The City was represented by the special counsel of the Mayor, Dr. William Draper Lewis of the Department of Law of the University of Pennsylvania, who had acted in the same capacity in the preparation of the contract.

At the opening of the hearing the following statement was made by his Honor the Mayor:

Mr. Chairman, and Members of the Commission:--In a petition filed by the City asking for the approval of the lease for the operation of the existing street railway lines and the proposed new high-speed lines is clearly set forth the fact that a comprehensive system of City Transit is essential for the prosperity of the City and the welfare of its inhabitants. Such a system can be realized only through an agreement between the City and that Company which controls the existing transit facilities. The contract herewith submitted is such an agreement. It has been agreed to only after years of negotiation. It is the result of laborious engineering, transportation, financial and legal investigation, and a long and thorough public discussion. The approval of your Honorable Body is the one remaining step necessary to enable the City to enjoy the benefits of a transportation system adequate to the needs of a great city.

When I submitted this proposition to the City Councils, Mr. Chairman, on August 17th last, I specially requested that public hearings should be held, as many as might be deemed necessary to give to everyone who wished to be heard in connection with, or for or against this lease, an opportunity to be heard, and many meetings were held. Some spoke in favor of it and some against, but this matter has been thoroughly threshed out in public, and no move was made by Councils until it was apparent that all who wished to be heard had been given an opportunity.



When I submitted this lease for your consideration I submitted what I conscientiously believed to be an honest, fair proposition, fair alike to the people of the City of Philadelphia and to the Philadelphia Rapid Transit Company. That is all I have to say on the matter.

Dr. Lewis followed with an address, giving a full and complete analysis of the principles upon which the lease was based. Dr. Lewis was followed by Edwin M. Abbott, Esq., and C. Oscar Beasley, Esq., representing the United Business Men's Association, who protested against the approval of the lease.

These introductory statements occupied the entire hearing, which was then adjourned until Thursday, April 11th, 10 A. M. At this hearing C. Oscar Beasley, Esq., appearing for the United Business Men's Association, continued his opening address in opposition to the approval of the contract. The taking of testimony then began, and the Director of the Department was first called to the stand and questioned by Dr. Lewis, representing the City, and then the Commissioners.

The Director submitted several exhibits in his testimony, and Dr. Lewis filed a printed brief and statement as special counsel for the City.

At the adjourned hearing on April 25, 1918, cross-examination and re-examination of the Director continued and witnesses were called to furnish evidence on behalf of the protestants. The examination of the witnesses for the protestants consumed the remainder of the session and the meeting was then adjourned until May 9, 1918.

At the fourth meeting the evidence in behalf of the protestants was continued, the entire session being consumed in the examination and cross-examination of these witnesses.

At the close of this session the Chairman announced that the Commission desired to confine the hearings to the legal and economic phases presented by the lease. He said: "We are sitting here, in a sense, in review of the action of the City authorities and the railway company (The Philadelphia Rapid Transit Company) in coming to an agreement. What we desire to be advised on is whether or not the terms of this lease are objectionable or offend against substantive law, or offend against economic policies, as developed by the testimony." The Chairman then announced: "The Commission will proceed no further with the case at the present time, the evidence having closed, and immediately after the transcription of the notes of testimony, affording Counsel the opportunity of perusing them, we will hear final arguments of counsel at Harrisburg, on a date to be fixed not later than two weeks hence."

The open hearings were then adjourned, and on June 4th, at





Harrisburg, the final arguments and briefs of Counsel were presented before the full Commission. The Commission then took the case under advisement, but at the close of the year had neither approved nor disapproved the contract.

#### A DISCUSSION OF THE OPERATING CONTRACT; ITS

##### PROBABLE CONSEQUENCES

The signing by the Mayor for the City, and by Thomas E. Mitten, President, for the Company, of a contract providing for the unified operation of all the transit facilities of the City, was the culmination of over five years of effort to determine the way that the City's System should be operated. That contract only becomes effective, however, if and when approved by the Public Service Commission, and it has now been before that body for ten months. As the contract contains many unique features, it is difficult to forecast whether the final action of the Commission will be approval or disapproval. However, the mere fact that the City and the Company have reached a definite understanding as to the method of operating the City's System is of fundamental importance. The real significance of the act lies in the fact that the City thereby rejected the policy of operating the City's High-Speed Lines by City employees, as a bureau of the City Government, like the Water Bureau; and asserted its preference for the operating of those lines under a definite contract with a private concern able to supply the skilled management needed to render proper service to the public as was done 22 years ago in the case of the City's Gas Works. It is generally admitted that the service rendered by the United Gas Improvement Company under that contract has been free from serious criticism. Just now it is a popular issue whether or not the Government should operate the railroads and other privately owned utilities; but it is generally admitted that the municipal operation of utilities in Philadelphia has not proved a conspicuous success. The contrast between the present service furnished by the United Gas Improvement Company and the service under the former management by the City is probably in large part responsible for the City's decision to contract for the operation of its new high-speed system. However, the operation of a complex transit system such as the contract now before the Commission for approval contemplates is a much more difficult problem than the operation of a gas plant. There is no certainty that because a contract executed in 1897 between the City and the United Gas Improvement Company has worked advantageously to the City that it has been equally satisfactory to the Company; nor is it certain that this Transit Contract, should it become effective, will prove equally satisfactory to either party.

Nearly 18 months have elapsed since the first draft of that contract was formulated and presented to City Councils and the public as the one solution of the problem then apparently possible, and the Public Service Commission has not as yet approved the contract. In view of this delay by the Commission and the many developments and decisions in Public Service Company Law, which have been reached during that delay, it seems proper



to discuss in this report the probable causes for such delay and the effect which recent developments in fare regulation may have on the satisfactory working out of the contract, if and when approved. The contract, as finally signed (as is the case in most contracts of such character), represents the result of amendment and compromise. The Mayor, in submitting the original draft, said: "I do not hold the draft now presented to you as perfect in every detail, but it represents an honest attempt to carry into effect the spirit of your instructions to the Director of City Transit; it is an honest effort to do justice to the City and the Company."

It was held that the principles on which the contract was based were sound, and should provide fair, just and equitable relations between the parties.

#### The Contract as a Public Franchise.

Such contracts are really public franchises, and it is admittedly a difficult task to draw a "fair" contract for public service which, in practice, will prove to be fair to all parties over a long period of years. In a contract of this character, involving the use of the City's property, the operator of the system must become either the lessee of that property or a partner or agent of the City.

In the case of the gas contract of 1897, the United Gas Improvement Company operates the City's Gas Plant under a lease in which the amount of the City rental is contingent upon the Company's gross earnings. In the case of the City's Transit System a similar type of lease covering the City's System as authorized seemed to be impossible, and, therefore, the contract was so drawn as to permit the actual unification of the two systems and permit the City and Company to become partners in fact, if not in law.

#### Value of the Contract to the Company as a Franchise.

The commercial value of a public utility franchise, if such value exists, lies in the opportunity which it affords the owner to earn a rate of return on his capital greater than could ordinarily be earned in fields not requiring such a franchise. The street railway companies underlying the Philadelphia Rapid Transit Company were, in former years, able to lease their property and franchises at exorbitant rentals to operating companies later organized because their franchises were exclusive, perpetual, and seemingly offered great opportunities for profit to the losses. Business conditions rarely remain stationary over long periods, however, and today, under those same franchises, the Philadelphia Rapid Transit Company is barely able to earn the rentals for which it is obligated under those leases. Today the granting of a franchise permitting excessive profits is not regarded as in the public interest and in the case of the contract for the operation of the City's System opportunity for further exploitation of the public was sought to be prevented.





In fixing the rental for the high-speed lines the City was unable to follow the plan on which the Gas Works was rented. In that lease the annual rental paid the City by the Company bears no fixed relation to the cost of the plant or the amount of money invested by the City in the business. Instead, that rental was based on the amount of business done; the gross receipts of the Company derived from the sale of gas. The Gas Works had been in operation over 50 years; all bonds issued to pay for its cost had been paid off; it was practically a City monopoly with an established business; hence the City was in a position to stipulate and fix in the lease a reasonable price for the sale of gas to the public and in addition to demand as rental for the plant a substantial payment into the City Treasury. What appears in that lease as a rental for the plant is in reality a franchise payment--as it is a payment made for the grant of a monopoly of the right to sell gas in Philadelphia. Had the grant been subject to competition the risks of the business would have been much greater and might easily have been so great that the franchise would have had little commercial value to the Company.

#### Unified Operation Desired by the City.

The City's System possesses no monopoly of the transit field in Philadelphia as was the case with its gas works, and could directly serve only a small fraction of the people if the co-operation of the Philadelphia Rapid Transit Company, which at present monopolizes the transit field in the City, were not secured. From the start of its program the City desired that its system supplement the Company's System and be operated as a part of it. The many advantages to the public resulting from a unification of the two systems were recognized by all. The Company, however, in view of the rising costs of operation, was reluctant to assume additional financial obligations.

#### Main Features of the Contract.

From the City's side, the objects of the contract were to secure:

- 1st--An operator and a definite rental for the City's property.
- 2d--- Assurance of control over the service to be supplied by the Company.
- 3d---Control over the extent of the Company's profits.

As any rental paid the City must be derived from the fare, and as the quality and amount of service furnished by the Company, together with the Company's prosperity, and even its existence depend upon the fare, it is readily seen that the contract really centers upon Articles XX and XXI, which contain the fare provisions of the contract.



## THE EFFECT OF THE EXTENT AND COST OF THE CITY'S SUSSEX VICE

### THE RENTAL AND FARE

As was just stated, the City's prime object in entering into the contract was to secure an operator for the transit facilities which it is building and proposes to build. Other matters dealt with in the contract are merely incidental, and are included because they are involved in the problem and present themselves coincident with the leasing of the City's huge rapid transit system to the operator of the existing street railways of the City.

The main characteristic of a lease for any property is the provision for payment of a definite rental to the owner. In the case of public utilities it is customary that the rental shall bear a definite relation to the cost value of the property leased. Rapid Transit Lines of the City are being constructed entirely from the proceeds of City bonds upon which interest and sinking fund charges will continue to fall due during the term of the contract for operation. As these charges will be paid each year from the City Treasury, the rental to be paid the City for the use of its lines should properly and logically equal the amount of these charges.

Therefore, in the operating contract now before the Commission the amount of rental to be paid into the City Treasury for use of the City System has been so specified and fixed. In the earlier forms of operating contract proposed, the City's rental was indeterminate and depended upon the residue of earnings derived from a more or less fixed rate of fare.

The insistence by the City's representatives upon a rental equal to its annual charges, and upon the payment of the City's rental before the dividend to the Philadelphia Rapid Transit Company's stockholders, was the question of the extent of the City's System and its cost, and, therefore, the rental, a most important one, especially to the Company.

The City's System, as now authorized, when fully completed, will represent an investment of probably \$125,000,000; the annual charges upon which will be approximately \$10,000,000, thus approximating 70 per cent. of the fixed charges upon the Company's System at the time of making the contract.

In the earlier forms of lease, wherein the rental of the City's System represented only the residue remaining after the payment to the Company's stockholders of an assured dividend, the extent and cost of the City's System was not, of course, of such great concern to the Company. The Company naturally desired ample assurance that the revenues of the unified system should be sufficient to meet these huge additional obligations and leave a balance sufficient to pay the dividend to its stockholders. In the negotiations it was admitted by both parties that the existing rates of fare would be insufficient to meet the requirements of this form of contract. It was, therefore, necessary in the contract that the rate of fare should be increased at all times to meet these requirements.





As the result of public consideration, the contract was amended to give the payments to the Company's stockholders equality with the City rental, continuing, however, to require that the fare be sufficient to meet both the charges. The assurance of this--to the extent that the parties to the contract could do so--has been written into the contract.

#### Imperfections of the Contract.

Various plans for unifying the lines of the City and Company were devised, and all except the one adopted were believed impracticable or were unsatisfactory to either the City or Company. The stumbling block was the difficulty in reaching an agreement as to:

1st--The amount of rental to be paid by the Company for the use of the City's System, and how the revenue to pay the rental should be derived.

2d--The amount and method of payment to be made the Company as operator of the City's System.

The plan finally agreed upon and which is now before the Commission for approval represents the final result of concessions by both parties thereto, and, like most compromise agreements, is probably not wholly satisfactory to either party. From the Director's point of view, the two points of the agreement most unsatisfactory are:

1st--It is another confirmation of the Company's existing capitalization resulting from the highly objectionable plan of financing public utilities by successive leases. It piles one more obligation on top of a pile already too high, which the car rider is carrying, in order to insure the payment to the City Treasury of an adequate rental for the City's System; and in order to provide this rental in which the City is interested, the contract provides that the fare on the unified system shall be at all times sufficient to meet the entire cost of the service, including the dividend on the Company's stock.

The developments of the past year in other cities seem to indicate that this fare provision of the contract will not prove satisfactory. It will certainly be difficult to carry out and may prove impossible.

2d--The assurance of a fixed dividend upon the share capital of the Company.

The assurance to the Company of any fixed sum of money in return for its acting as the operator for the City's System is in the nature of a flat wage payment. Modern plans of efficient management are based on the theory that "there must needs be



some payment on the top of wages which will remove from the Company's interest in efficient management.

The assurance of any fixed rate of dividend to the Company without regard to whether it be 4, 5 or 6 per cent. removes all financial risk from the business and thereby kills all the incentives to economical management of the property by the Company. The principal advantage to the City in placing its system under private direction was to secure a more efficient management than could be obtained if operated by municipal employees; but by this provision of the contract efficient management is nullified and there is no certainty that the results will be superior to municipal operation. In order to secure the contract, a fundamental principle of business management has been sacrificed.

From the Company's viewpoint, the fact that the contract places no limitation whatever upon the extent of the City's system which the Company must operate, or the amount of capitalization and corresponding rental which the system will be forced to carry under the contract is doubtless objectionable. Although the Company's System is held to be over-capitalized, yet from the standpoint of net earnings based on the same fare the City's System is even worse. The result of this over-capitalization of both the systems is bound to be shown in the practical working out of the fare clause of the contract. The Company may well view the contract with apprehension, because it has agreed to operate a system without definite limits. The number and extent of the lines which may ultimately comprise the City's System under the contract, and the corresponding investment involved, are under the control of public officials who, in their zeal to satisfy public demands may disregard economic limitations. Construction carried beyond the limit of economic justification becomes a liability to both the City and Company, for the investment may readily be made so great that no possible fare will carry it.

#### EFFECT OF THE FARE UPON TRAFFIC AND EARNINGS

During the past year or more the costs of providing street railway transportation have been increased enormously, principally because of the advances in labor and material during the war period. These increases in costs have been closely followed by wholesale applications to public service commissions in all parts of the country for increased fares, and in many cases these requests of the railway companies have been justly granted.

Increases have been allowed not only to six cents, but to seven cents, eight cents, and even higher. These early increases were, in many cases, requested and granted on the assumption that if the unit fare should be raised from five cents to six cents, a 20 per cent. increase in revenue should result; if it were raised to seven cents a 40 per cent. increase in revenue should result; and if raised to eight cents, the Company should get a 60 per cent. increase in revenue. These results assume that the same number of passengers would ride at the higher fares as at the original five-





cent fare.

Experience gained, especially during the past year, has shown the error of this assumption. Each increase in fare has been accompanied by a falling off in the number of passengers on the lines. In almost every case where fares have been raised the results have been disappointing, and the resulting increase in revenue has fallen far short of the estimate. The class of passengers lost has been, in most part, the profitable short riders. In other words, the railway increasing fares tends to drive away that part of the traffic to which it is not an absolute necessity, but rather a convenience.

Various devices, like zone systems and transfer charges, are being experimented with in the effort to gain a sufficient increase in revenue, but so far no great measure of success has been obtained.

#### DEVELOPMENT OF THE TRANSIT FINANCIAL PLAN

During the year 1918 thirty-year bonds to the amount of \$2,000,000 were sold for transit purposes. These bonds were part of the issue authorized June 30, 1915. The sale of these bonds brings the amount of bonds outstanding issued for transit purposes to \$9,500,000.

#### Increase in Interest Rate on City's Bonds.

By Ordinance of Councils, approved by the Mayor, October 22, 1918, the maximum interest rate on the loan authorized June 30, 1915, was raised to 4-1/2 per cent., and the \$2,000,000 of bonds of this issue sold as of November 1, 1918, bear interest at this rate. This increase in the rate of interest is a matter of grave concern. Although Councils has not authorized a change in the rate of interest to be paid on the fifty-year loan of 1916, there is every probability that the same rate of interest must be paid as on the thirty-year loan. No bonds of this issue were sold during 1918.

#### Expenditures made during 1918.

Expended for construction from thirty-year loans	599,340.77
Expended for construction from fifty-year loans	1,999,342.19
Expended for the acquisition of real estate from fifty-year loans	121,902.77
Expended for interest and sinking funds on fifty-year loans	194,904.56
Expended for engineering expenses paid from loans	232,771.01
The expenditures during the year from budget funds were	1,211,000.00

Total expenditures during 1918

\$7,211,110.70



The total expenditures of the Department, from the initiation of the transit investigation on May 13, 1912, to the end of 1918, were as follows:

Construction--thirty-year loans	1,111,111.11
Construction--fifty-year loans	1,111,111.11
Interest and sinking fund payments on fifty-year loans	1,111,111.11
Real Estate--fifty-year loans	121,802.77
Engineering paid from loan funds	1,111,111.11
Engineering paid from budget funds	821,916.82

Total expenditures, May 13, 1912, to December 31, 1918

1,111,111.11

Diagram No. 76 shows the rate at which these funds have been expended, and; also, the rate at which bonds authorized for transit have been sold, and the rate at which contracts have been awarded and completed.

The following statements will make clear the financial status of the transit project, as of the close of the year:

The progress of the work during 1918 was retarded because of the lack of proper help and the scarcity of material, due to war conditions. Some of the contractors discussed the advisability of temporarily suspending or totally cancelling some of their contracts because of the war conditions, but none of them actually submitted any proposition covering this point to the department.

Contract 4--John E. Robinson, Contractor. Test borings for the year 1918:

Proposed connection between the Frankford Elevated Railway and the Market Street Subway--Wash test borings were made in Delaware Avenue, Water Street and Front Street, between Arch and Race Streets.

Proposed Darby Elevated Railway--Wash test borings were made in Thirtieth Street, from Market Street to Lombard Street; in Paschall and Gray's Ferry Avenues, from Forty-sixth to Forty-ninth Streets; and in Woodland Avenue, from Forty-ninth Street to Cobb's Creek.

Proposed Roxborough Elevated Railway--Wash test borings were made in Fairmount Park, from Twenty-fifth Street to Twenty-ninth Street; in Twenty-ninth Street, from Pennsylvania Avenue to Allegheny Avenue; in Henry Avenue, from Allegheny Avenue to School Lane.

Proposed Broad Street Subway--Wash test borings were made in North Broad Street, from Noble Street to Race Street.





Contract 520--McClintic-Marshall Company, Contractor.  
Steel superstructure and appurtenant work for Huntingdon Street Station Platforms. Contract awarded in 1917. Completed in 1918.

Contract 525--William Steele & Sons Company, Contractor.  
Station platforms and connecting passages for stations at Orthodox-Margaret Streets and Ruan-Church Streets. Contract awarded December 1918. Work not started on this contract.

Contract 528--Keystone State Construction Company, Contractor. Track floor, floor drains and footwalks in Front Street. Kensington Avenue and Frankford Avenue, from Callowhill Street to Dyre Street. Seventy-five per cent. completed.

The work was suspended in December because of freezing weather. The casting and the erection of concrete footwalk slabs continued between May 1st and the time of suspension of work in December. The casting and erecting of the cast-iron gutters continued during the entire year.

Contract 549--George B. Clopp, Contractor. Cast-iron fillet brackets for columns in Frankford Avenue, between Church Street and Dyre Street. Sixty-five per cent. completed.

Contract 530--M. & J. B. McHugh, Contractor. Erecting cast-iron fillet brackets on single column bents in Frankford Avenue, between Church Street and Dyre Street. Ten per cent. completed.

Contract 533--Standard Construction Company, Contractor. Station buildings on Frankford Avenue, at Orthodox-Margaret Streets. Fifty per cent. completed.

The work on this contract consists of tearing down the existing buildings, underpinning or rebuilding party walls as required, and building station buildings at 4604 Frankford Avenue and at the southeast corner of Frankford Avenue and Margaret Street. The work, which was suspended during the winter on account of the freezing weather, was resumed in May. During the year the foundation walls were completed, also the outside brick walls and the concrete steps to the track level.

Contract 534--Standard Construction Company, Contractor. Station buildings on Frankford Avenue at Ruan-Church Streets. Seventy per cent. completed.

The work on this contract consists of tearing down the existing buildings, underpinning or rebuilding party walls as required, and building station buildings at 4269-71 and 4270-72 Frankford Avenue. All of the foundation walls, brick walls, and concrete steps, floors and roof are completed.

Contract 539--S. Faith Company, Inc., Contractor. Plumbing in station buildings at Orthodox-Margaret Streets and Ruan-



Church Streets. Thirty-five per cent. completed.

Work progressed with the erection of the buildings and all the rough-in for the plumbing fixtures is completed.

Contract 540--J. F. Buchanan & Company, Contractor. Electrical installations in station buildings at Orthodox-Margaret Streets and Ruan-Church Streets. Sixty per cent. completed.

Work progressed with the erection of buildings.

Respectfully submitted,

(Signed) HAROLD GOLDEN,  
Division Engineer.

### SUBWAY CONSTRUCTION

As no additional sections of subway construction were placed under contract during the year operations were confined to the continuance of work on the contracts previously awarded and in process of execution at the date of the last annual report.

These contracts are:

- Nos. 101 and 102--City Hall Station, Broad Street Subway,
- No. 201--Arch Street Subway.
- No. 203--Locust Street Subway.
- No. 16--reconstruction of Thompson Street Sewer.

Early in the year 1918 it was realized that with the constantly increasing difficulty of carrying on work of this character under the disturbed industrial conditions and restrictions imposed by the war, it was practically impossible to proceed with the full construction program embracing all work under contract, and, therefore, partial suspension of work on Contracts Nos. 10, 201 and 203, preliminary to their ultimate cancellation, was authorized by Ordinance of Councils approved June 26, 1918.

Under authorization of this ordinance a tentative agreement between the representatives of the City and the contractor provided for the completion of the various structures as planned, and the restoration of the streets within such limits as had been opened up to the date of suspension and upon which work was then in progress.

In accordance with the agreement the following limits were fixed between which the sections are to be completed; the remainder of the work embraced by the contracts to be finally annulled by their cancellation:

Contract No. 16--From the eastern limit of the contract at Seventh Street to a point approximately 46 feet west of Eleventh Street, involving a total length of completed sewer of 1,794 feet, or 54 per cent. of the original contract length.





Contract No. 231, Arch Street Subway--The subway had been opened up in Arch Street, one block from Tenth Street and the other east from Thirteenth street.

The subway structure with its appurtenances is to be completed from a point approximately 3 feet east of the west house line of Tenth Street to a point 123 feet west of the west house line of Tenth Street, involving a length of 126 feet of completed structure. Also, from a point 3 feet east of the east house line of Thirteenth Street to a point 266 feet east of the east house line of Thirteenth Street, the length of the structure here involved being approximately 263 feet, and the total of the two sections in Arch Street aggregating 389 feet, or approximately 19 per cent. of the contract length as modified in December 1917.

Contract No. 23, Locust Street Subway--The two detached sections upon which work was in progress at the time the act of suspension became effective are in the vicinity of Ninth Street and Eleventh Street respectively, and are limited as follows:

From the eastern limit of the contract, near Eighth Street, to a point 69 feet west of the west house line of Ninth Street, the length of the subway structure affected being 284 feet. The section at Eleventh Street extends from a point 10 feet east of the west house line of Eleventh Street for a distance of 296 feet west of the west house line of Eleventh Street, the length of this section being 296 feet. The total length of structure on Locust Street to be completed prior to the ultimate cancellation of the contract is 580 feet, or 29 per cent. of the contract length as modified in December, 1917.

As the underpinning of the buildings on Arch and Locust Streets was carried on in advance of the opening up of the subway trench this feature of the construction had extended beyond the limits specified above when the suspension order became effective. Thereafter the operation was restricted to the completion of the underpinning in progress at that time.

Since July 16th the work has been confined within the limits as fixed, the end in view being to complete the detached sections of subway, temporarily bulkheading the ends, and to restore the underground structures and surface conditions of the streets, prior to the cancellation of the contracts.

As the reconstructed sewerage systems as designed to be built in connection with the subways cannot be placed in service until continuous connection has been established throughout the entire length thereof, provision is to be made for the temporary connection of the existing sewers and drains that have been disturbed in the course of the work.

The preliminary agreement referred to above requires the Contractor to execute all work in connection with the closing-up stage at actual cost and without profit, and from the suspension date all payments have been made on this basis.



As practically all the structural steel required for contracts nos. 201 and 203 had been fabricated before the matter of annulment was decided, the City, under the terms of the agreement, takes over this material. The portion that cannot be erected at this time is being held in storage in the yards of the McClintic-Marshall Company in Pottstown, pending settlement of the question of its future use or disposal.

CITY HALL STATION, BROAD STREET SUBWAY----(CONTRACTS NOS. 101 AND 102)

The ordinance of Council's authorizing the suspension of work on certain contracts does not apply to contracts Nos. 101 and 102, involving the construction of the City Hall Station section, as progress on that project had advanced to a stage where it was not practicable more advisable, from the standpoint of security of the building, to curtail or make any change in the construction program that was in process of execution.

Moreover, as the greater portion of the materials required for these contracts, including practically all the structural steel, had either been delivered at the site or where otherwise provided for, this phase of the problem was not a serious or controlling one such as was the case with the other subway contracts. Shortage of labor was a factor that retarded progress to a considerable degree, but it was possible to maintain a working force that accomplished a fair rate of such despite the handicap.

Throughout the year the principal features involved in the construction on these contracts were as follows:

- 1--Replacement of old foundations of City Hall.
- 2--Building of reinforced concrete roof girders and placing steel roof girders.
- 3--Constructing subway walls, including the driving of the steel pile foundation therefor.

The operation of removing the defective foundations of the building and their replacement with brick and concrete masonry was continued in the manner described in former reports, and this feature of the construction is now 99 per cent. completed. The total length of the walls that it has been found necessary to rebuild amounts to approximately 2,800 linear feet.

During this operation, which may be considered the first stage of the underpinning, operations, comparatively little settlement has developed, and the cracks that have occurred in the walls in certain parts of the building are few in number and of a superficial nature.





The construction of the wall pits in detached sections, varying from 5 to 8 feet in length, which method was followed in order to reduce the liability of disturbing the adjacent foundations, has reached the stage where the sections have been joined to form the wall and floor, approximately 89 per cent. completed.

In connection with the driving of the steel pipe piles, some difficulty was experienced, because of the fact that the material penetrated consisted of a dense gravel more or less interspersed with boulders. The latter, in most instances, were successfully removed or passed, and practically the entire pile foundation is seated in mica rock.

The load tests that have been conducted on representative piles, applying a maximum load of 116 tons per pile, gave very satisfactory results and indicate that the foundation is adequate for the support of the loads for which it is designed, with a sufficient factor of safety, and a probable settlement factor well within the limits anticipated in work of this character.

The ground water that was encountered at an elevation approximately six feet above the sub-grade of the subway structure was temporarily lowered and controlled during the sinking of the wall pits by pumps acting in the main construction sumps, supplemented by local pumping where required.

#### Underpinning Philadelphia Rapid Transit Company's Subway in Filbert Street

The Broad Street Subway is designed to pass beneath and support the existing subway in Filbert Street in such a manner that ultimately the roof of the new structure replaces and forms the floor system of the older structure.

The work requires the removal of the supporting columns of the latter and their replacement by a system of girders and columns extending in length with their footings bearing upon the soil at the lower grade.

The outstanding features of the construction here involved are concerned principally with the temporary support of the existing structure and the removal of the old concrete in the floor and walls, and the permit the insertion of the new steel framework, which finally forms the framework of the old and new subways.

The work of removing the floor and sections of the walls affected, necessarily has to be done in detached sections, limited in size, and the erection of the supporting steel, is now in progress. In the course of the removal of the parts of the old structure that are to be replaced, the following involving the use of the post and needle system of temporary support is followed. During the work of construction the train in service in the old subway is being maintained, with the exception of occasional diversion of traffic in the early morning hours.

The depth and proximity of the subway to the corner of Filbert Street at the corner of the Broad Street Station of the Pennsylvania Railroad is such as to require underpinning of the foundations of that building for a certain length of the frontage on Broad Street. Contract No. 102 makes provision



for the portion of this work made necessary within its limits; the remainder was originally to the adjoining section to the north, No. 100, award of which has been withdrawn. The engineering railroad company prescribed and approved a method which required underpinning feature involved to be completed in the present operation in order to avoid subsequent disturbance of the foundation support. This plan is being followed, provision having been made to include in No. 100 the additional work now required. The underpinning of the frontage affected has been completed.

At the close of the year the major portion of the features on Contracts Nos. 100 and 101 had been completed, with the exception of the work referred to above at the north end of the section involving the change in and support of the Filbert Street Subway.

The section at the south end of the station is completed to the extent of the new walls and steel work, and the Rapid Transit Subway in South Park Square.

The construction of that portion of the station building which the City Hall has reached the stage where practically all the work has been built, the roof girders in position, and the replaced foundation of the building incorporated in the roof system, which, in conjunction with the subway walls, ultimately constitute its new support.

The foundations of the building are still bearing upon the underlying soil remaining between the subway walls as constructed in place, and upon the removal of this core, which is now in progress, the building will be automatically transferred to the subway walls, which then becomes its permanent support.

In addition to and following the removal of the core there remain the interior features to be built, consisting of stairs, escalators, and platforms.

#### Contract No. 112--Piping for Pumping Plant of City Hall

An appurtenant to the construction of the City Hall Station was the necessary removal of the pumps operating the elevators on the west side of the station, which occupied basement rooms immediately over the proposed station. To provide for the reinstallation of the pumps a room was constructed under the south side of the courtyard, east of the subway. Sufficient capacity was provided in this room for installing also the east side pumps, thus centralizing the elevator power plant.

After the completion of the work and placing the east side pumps in operation, the electrical work was completed to cause it to be operated by electric-driven pumps for the remaining water supply and for the





side pumps. The obligation to make connections for three pumps was accordingly cancelled and credit to City taken for the omitted portion of the work.

The Electrical Bureau purchased and installed in the newly constructed pump room, at its own expense, three electric-driven pumps, and it remained the obligation of this department to make the connections of these pumps to the operating pipes of the elevators. The work was on a separate contract in May, and award made on June 14th to Christopher J. Doyle in the lump sum of \$4,400.

Owing to the abnormal winter conditions, work was not be commenced on these connections until early in January, 1919.

The accompanying tables, diagrams, and photographs, division engineers illustrate and describe in detail the progress on the various contracts.

Respectfully submitted,

(Signed) Frank R. Fisher  
Engineer of Street Railways

Record of Application Made to and Hearings Held Before the Public Service Commission of the Commonwealth of Pennsylvania

(Former records are published in the annual reports as follows: 1915, page 22; 1916, page 20; 1917, page 17).

#### Two Applications

During the year application was made by the City of Philadelphia to the Public Service Commission of the Commonwealth of Pennsylvania for a certificate of public convenience, evidencing the Commission's approval of construction, as follows:

March 22, 1918 (A.-1851, 1918):

Construction, operation and maintenance of a physical connections between the Frankford Elevated Railway Line and the Market Street Elevated Passenger Railway Line of the Philadelphia Rapid Transit Company at the crossing point of the said elevated line of the company's said elevated line on private right-of-way at a point near the intersection of Front and Arch Streets.

Application was made, accompanied by a joinder of the Philadelphia Rapid Transit Company, for a certificate of public convenience, evidencing the Commission's approval of a contract dated February 18, 1918, as follows:

February 25, 1918 (M. C.--831, 1918):

Between the City of Philadelphia and the Philadelphia Rapid Transit Company for the maintenance and operation by the said Company of the City's transit facilities and extensions thereof.



Copies of the ...  
pages 342 and 351.

...

One hearing and four continued hearings were held before the Service Commission of the Commonwealth of Pennsylvania for approval of the contract dated February 18, 1913, Philadelphia and the Philadelphia Rapid Transit Company, for the and operation by the said Company of the City's transit facilities extensions thereof (Municipal Contract Docket No. 831, 1913,) as March 27, 1918, in the Select Council Chamber, City Hall, Philadelphia, Hearing.

...

Between the

City of Philadelphia  
and the

Philadelphia Rapid Transit Company

(Authorized by Ordinance of Councils Approved January 3, 1913)

Agreement, entered into this eighteenth day of February, one thousand nine hundred and eighteen, between the City of Philadelphia, of the one part (hereinafter called the City), and the Philadelphia Rapid Transit Company, of the other part (hereinafter called the Company).

Whereas, The Company is a motor power company duly organized and existing under the Laws of the Commonwealth of Pennsylvania--and by virtue of various leases, agreements and other arrangements--has a system of surface, elevated and underground railroads in the City of Philadelphia, with minor extensions into the surrounding territory--exercising the authority, in this line, to construct, maintain and operate rapid transit facilities constituting the City;

Whereas, The City possesses, subject to the limitations of the Public Service Company Law, the authority, by an Act of the General Assembly, No. 66, approved, April 15, 1907, and an Act No. 330, approved June 17, 1913, and A Supplement to an Act No. 129, approved May 9, 1913, to establish, construct, pledge and lease rapid transit facilities; and to contract with the Company and to amend the terms of contracts entered into between the City and the Company;

And Whereas, The City has determined that the public interest requires the construction, equipment, maintenance and operation of rapid transit railroads to be operated in accordance with the laws of the State; and that the City should enter into a Contract with the Company, in which the Company shall maintain and operate the same;

Now, Therefore, In consideration of the covenants and undertakings herein on behalf of each party with the other, and of the terms herein set forth, it is covenanted and agreed between the parties to the following:





and Descriptive  
Article 1.

The following definitions shall apply to the terms used in this Contract:

1. City.

"City" shall mean the City of Philadelphia and any board or official succeeding to any of the rights or powers of this Contract.

2. Mayor.

"Mayor" shall mean the Mayor of the City of Philadelphia, and any board or official succeeding to the powers of the Mayor respecting the subject matter of this Contract.

3. Councils.

"Councils" shall mean the Select and Common Councils of the City of Philadelphia, and any board or official succeeding to the powers of the Councils respecting the subject matter of this Contract.

4. Department.

"Department" shall mean the Department of Public Safety of the City of Philadelphia, as established under A Supplement to an Act of the General Assembly No. 129, approved May 9, 1913, and any board or official succeeding to the functions of the Department respecting the subject matter of this Contract.

5. Director.

"Director" shall mean the Director of the Department of Public Safety of the City of Philadelphia as appointed under A Supplement to an Act of the General Assembly No. 129, approved May 9, 1913, and any board or official succeeding to the powers of the Director respecting the subject matter of this Contract.

6. City Controller.

"City Controller" shall mean the City Controller of the City of Philadelphia and any board or official succeeding to the powers of the said Controller respecting the subject matter of this Contract.

7. City Solicitor.

"City Solicitor" shall mean the City Solicitor of the City of Philadelphia and any board or official succeeding to the powers of the said Solicitor respecting the subject matter of this Contract.



8. Commission.

"Commission" shall mean the Public Service Commission of Pennsylvania, and all its successors, and the duties of the said Commission as set forth in the latter of this Contract.

9. Company

"Company" shall mean the Philadelphia Rapid Transit Company and its successors.

10. Board

"Board" shall mean the Supervision Board created under Section D of the 1907 Contract.

11. 1907 Contract.

"1907 Contract" shall mean the contract between the City of Philadelphia and the Philadelphia Rapid Transit Company authorized by Ordinance of Councils approved July 1, 1907.

12. Sinking Fund Commission.

"Sinking Fund Commission" shall mean the Commission consisting of the Mayor, the President of the Company and the President of the Board of Directors of City Trusts, established under the provisions of Section Ninth of the 1907 Contract, or any body or board succeeding to its office and duties.

13. Transit Facilities.

"Transit Facilities" shall mean tracks, stations, rolling stock, equipment or appurtenances of any kind, including real estate and interests therein or any one or part of them necessary to constitute a complete electric railway ready for operation.

14. City's Transit Facilities.

"City's Transit Facilities" shall mean Transit Facilities provided by the City under this Contract.

15. Transit Facilities to be Furnished by the Company for the City.

"Transit Facilities to be Furnished by the Company for the City" shall mean Transit Facilities to be provided by the Company for the City's System under this Contract.

16. Company's Transit Facilities.

"Company's Transit Facilities" shall mean Transit Facilities, owned, leased, controlled or operated by the Company, exclusive of the City's Transit Facilities and Transit Facilities to be Furnished by the Company for the City.





17. City's System.

"City's System" shall mean any transit line or extension constructed by the City, or such section of a transit line or extension constructed by the City, as the Board shall determine to be capable of operation as a part of the Unified System, and any additions thereto or extensions thereof.

18. Individual Operating Section of the City's System.

"Individual Operating Section of the City's System" shall mean a transit line or extension constructed by the City, or such section of a transit line or extension constructed by the City, as the Board shall determine to be capable of operation as a part of the Unified System.

19. Market Street Line.

"Market Street Line" shall mean that portion of the elevated and surface structures, tracks, stations, rolling stock, and appurtenances of every nature including real estate therein located in Market Street, streets bounding City Hall, private right-of-way, Arch Street and Delaware Avenue, which is devoted to high-speed train operation, and any additions thereto or extensions thereof.

20. Present Surface System.

"Present Surface System" shall mean the electric railway owned, leased, controlled or operated by the Company, exclusive of the Market Street Line, but including that portion of the Market Street Subway structure which is used by surface cars.

21. Extensions of the Present Surface System.

"Extensions of the Present Surface System" shall mean the structures, tracks, stations, rolling stock, equipment and appurtenances of every nature, including real estate and interests therein, comprising surface lines or parts of lines, or branches, which may be added by the Company to the Present Surface System.

22. Company's System.

"Company's System" shall mean the Present Surface System, Extensions of the Present Surface System, the Market Street Line, and any lines which may be built, owned, leased, controlled or operated by the Company, exclusive of the City's System.

23. Unified System.

"Unified System" shall mean the City's System and the Company's System as they may be constituted from time to time, and operated together as one system by the Company under the provisions of this Contract.



24. Delivery District.

"Delivery District" shall mean that portion of Philadelphia lying between Arch Street on the north and Locust Street on the South, both inclusive, and between the Delaware and Schuylkill Rivers.

25. Gross Revenue.

"Gross Revenue" shall mean the gross revenue specified in Article XIX of this Contract.

26. Initial Surplus.

"Initial Surplus" shall mean the surplus which the Company shall have accumulated on the date upon which this Contract shall become effective as determined by the audit provided for in Article XXIII, Paragraph 2.

27. New Surplus.

"New Surplus" shall mean the balance remaining from time to time after current payments shall have been made under Article XX, Paragraph 1, Items 1 to 8 inclusive, of this Contract, and after any depletion of Initial Surplus shall have been restored and all deficits in payments of Items 6, 7 and 8 of Article XX, Paragraph 1, shall have been made up.

28. Lease.

"Lease" shall mean the provisions of Section C of this Contract.

29. Fiscal Year.

"Fiscal Year" shall mean twelve months ending June 30th, unless and until otherwise determined by the Board.

30. Notice.

"Notice" shall mean a written notice actually served upon the party to whom notice is to be given.

Article II. General Description of the City's System

1. The City's System:

The City's System shall comprise:

(a) The City's lines, if, as and when constructed, authorized by Ordinance of Councils approved July 20, 1916, described as follows:

Broad Street Line with Branches:

A subway railway in Broad Street, from League Island to Olney Avenue, with four-track capacity between McFerran and Spruce Streets, with the necessary branch lines northeast and northwest from Broad Street.





#### Frankford Line:

An elevated railway from Front and Arch Streets to Rhawn ,  
Front Street, Kensington Avenue and Frankford Avenue to Frankford St.

#### 35th Ward--Bustleton and Byberry Surface Line:

A double-track surface passenger railway, beginning at  
Frankford Avenue and Oxford Avenue; thence along Oxford Avenue,  
Castor Road, Bustleton Avenue to Verree Road; thence along the  
section of Bustleton Avenue and Verree Road through private property  
along a proposed extension of Verree Road to the intersection of  
Road and Worthington Road; thence along Worthington Road and Southampton  
Road to the Byberry and Bensalem Pike, with all necessary curves, switch  
grading and widening of roads, construction of bridges and purchase of  
private property in connection therewith.

#### Darby Line:

An elevated railway, beginning at or near Thirtieth and Market Streets  
or at or near Thirtieth and Chestnut Streets, and extending thence to Darby.

#### Parkway--Northwest Line:

A subway railway extending beneath the Parkway from a point of connection  
with the Broad Street Subway at or near the City Hall, to the  
near the Green Street entrance; and an elevated railway connecting with the  
same, extending north over Twenty-ninth Street; thence to Henry Avenue or  
Street, together with an extension thereof to North Street, which  
be in whole or in parts either elevated or open subway.

#### Delivery Loop:

A subway railway in Arch Street, Eighth Street, and Locust Street, forming  
a delivery loop and connecting with the Broad Street Subway at or near Arch  
Street, and at or near Locust Street.

(b) The City line, if, and when constructed, authorized by the  
of Councils approved April 2, 1917, described as follows:

#### Chestnut Street Line:

A subway railway to be located mainly under Chestnut Street as a con-  
nection between the elevated railways leading to Frankford and to Darby.

(c) Such Transit Facilities are not authorized as may be furnished by  
the City.

#### 2. Provisions for Modifications in the City's System.

The routes, termini and character of construction of the lines composing  
the City's System shall be subject to such alterations and changes as may  
be made by the City with the approval of the Commission.



Section B

ARTICLE III

Article III. Program of Construction

The City will, during the term of this Contract, provide the Transit Facilities comprising the City's System, including reconstruction, extension, and improvement as provided in Article VIII, and it shall be the duty of the City or all or part of them. All Transit Facilities provided by the City during the term of this Contract shall become part of the Unified System.

As and when the City shall construct or purchase Transit Facilities constituting an Individual Operating Section of the City's System, the Company shall provide such additional Transit Facilities as may be required by Article V, to be used upon or in connection with the said Transit Facilities constituting such Individual Operating Section. The Company shall maintain and operate the said Section efficiently and according to the highest standards of electric railway operation.

Article IV. Extension of the Company's Transit Facilities

The Company agrees from time to time to provide and operate such additions and extensions to the Company's Transit Facilities within the limits of Philadelphia as the Commission upon recommendation of the Board and after hearing shall determine to be reasonable and practicable and necessary for the public interest. The Company shall adopt to the jurisdiction of the Board and shall be bound to carry out the Company to take any action necessary to enable it to construct or secure the construction of such additions or extensions, and the Company agrees to obey any such order made by the Commission in the exercise of its jurisdiction or in case the Commission should refuse to take jurisdiction of the recommendation of the Board and will construct or cause the construction of additions or extensions so ordered or authorized only to its ability to sell securities to finance the same as provided by Councils as provided in Article XII.

Article V. Transit Facilities to be Constructed by the Company

1. The Director shall give Notice to the Company of the City's System, and the Company shall furnish Transit Facilities for the same as specified in this Article, at or before such time as may be needed for operation: Provided, That reasonable time shall be given the Company in respect to Transit Facilities necessary for such parts of the City's System as may be under construction at the date upon which this Contract shall become effective. The Company shall install such Transit Facilities at such times and in such manner as not to interfere with the construction or installation of the City's Transit Facilities, so that the work of constructing and installing the City's Transit Facilities and the work of the Company may be co-ordinated.





efficiency as regards time and cost. If the City's System or any part thereof is delayed or delayed by neglect or failure to furnish the facilities specified in Article, and the City is hereby empowered, if in the opinion of the Director any such delay shall have been caused by the Company, to proceed, upon Notice, to supply such Transit Facilities at the expense as provided in Article XIII.

2. The Company shall provide the following Transit Facilities upon or in connection with the City's Transit Facilities:

- (a) Low tension feeders, both positive and negative.
- (b) High tension cables, wires, and conduits, transmission connections, including poles, wires and such other equipment as may be necessary for the operation of the City's System.
- (c) Power stations, sub-stations and other electrical equipment.
- (d) Telephone and any other apparatus for communication.
- (e) Lighting fixtures and wiring for stations and tunnels.
- (f) All station equipment.
- (g) Such shop tools, machinery, and other miscellaneous items as may be specified by the Board.

3. If called upon by the City acting through the Director with the approval of Councils the Company shall also furnish storage yards, shops, car houses and real estate necessary therefor, and rolling stock for any Individual Operating Section, except the City's Individual Operating Section of the Frankford Line, to the extent that the City shall be unable to provide such equipment owing to lack of borrowing capacity at the time; Provided (1) the Company can secure the money upon terms to be approved by Councils; and (2) the City shall agree to reimburse the Company to do so, agree to purchase such equipment at cost from the Company out of the first moneys which the City shall be able to borrow for Transit Facilities. The limit of the Company's investment in such equipment shall be three million (\$3,000,000) dollars. The City shall contribute to the equipment of a subsequent Individual Operating Section, and it shall not be called upon to contribute under this Section to the equipment of a subsequent Individual Operating Section. If the City shall purchase such equipment from the Company, the purchase money shall be used by the Company to cancel and retire the preferred stock, bonds, or other securities issued to the Company.

4. The Company hereby agrees that it will maintain and improve the operation of the Unified System. Subject to the approval of the Board, the Company may contract for the purchase of new power stations, sub-stations and other electrical equipment, and may improve, modify or change its power plants, sub-stations, and other electrical equipment forming part of its operating equipment.



5. In connection with the Transit Facilities to be provided by the Company for the City, and to facilitate the operation of the Unified System, the Company shall have the right to provide, furnish, install, maintain, in streets or other public places, such connections, conduits, pipes, ways or other means for the transportation or transmission of electricity, steam, water, air, or other form of energy to provide power or to send messages, as may be necessary solely for the proper operation of the Unified System; but no such conduits, pipes, ways or other means shall be provided, furnished, installed or laid unless the Board shall have approved the location, character and method of construction of the same, and the use of streets in connection therewith. All such work shall be subject to all City regulations applying thereto.

6. Wherever practicable, the Company shall be allowed to use for substations or other Transit Facilities, available land owned or controlled by the City for or as a part of the City's Transit Facilities.

Article VI. Adequacy and Availability of the Transit Facilities to be Furnished by the Company.

The Company shall at all times, during the term of this agreement, provide Transit Facilities for use upon or in connection with the City's Transit Facilities as specified in Article V, and Transit Facilities to be provided in connection with the Company's System, which shall be adequate and available. The Company shall reasonably anticipate the growth of traffic and provide sufficient of such Transit Facilities therefor, together with such spare portions of such Facilities as shall be necessary to provide reliable service.

The Transit Facilities to be furnished by the Company shall be of the best character known to the art of electric railway operation, and all Facilities provided from time to time and repairs thereto, substitutions therefor, and replacements and renewals thereof, shall be of equal character and shall maintain the Facilities at least equal to those originally provided and shall, in addition, include such improvements as the state of the art may hereafter be developed; and all Facilities to be furnished by the Company shall be in accordance with plans and specifications approved by the Board.

Article VII. Payment of Damages for Land Taken or Injured.

The City shall pay for all damage, direct or consequential, to real property or any rights in land taken, injured or destroyed by the construction or operation of the City's System, and such payments shall be charged to the cost of the City's Transit Facilities: Provided, however, That the Board shall determine to what extent property damages arising from the operation of the City's System shall be charged to the operating expenses of the Unified System.

Article VIII. Use and Alteration of the Market Street Line of the City

The Company agrees that the City may provide any and all its Frankford Line and its Darby Line with the Market Street Line at the points of branch off, in order that such routing of cars may be made over the Darby Line, the Frankford Line and the Market Street Line as will best serve the public.





The Company shall or consents to the City to provide in or reconstruction of the Market Street Line, at such points of crossing of the Broad Street Line, the Parkway-North and the Delivery Loop, including the relocating and straightening high-speed tracks of the Market Street Line under the City, and provide best arrangements for communication stations and such other

The cost of any alteration, reconstruction or repair provided and any damages resulting therefrom shall be paid by the City of the City's Transit Facilities.

#### Article IX. Cost of Transit Facilities

##### 1. Items of Cost:

In computing the cost of a Transit Facility, only the following items shall be included, and none other:

(a) Actual and necessary net cost in money of construction of the Transit Facility.

(b) Actual and necessary net cost in money of administration, engineering, superintendence, legal services, insurance and damages properly chargeable as an expense of providing the Transit Facility.

(c) Taxes, assessments and other governmental charges on account of the Transit Facility paid or accrued before the beginning of its operation, and such assessments for benefits to the Facility during its operation as are in the opinion of the Board, not properly chargeable against Gross Revenue.

(d) In case the Transit Facility is provided by the Company, interest or dividends and sinking fund charges paid or accrued during the period prior to the use of the Facility in operation, upon bonds or securities issued to pay for the Facility. In case the Facility is provided by the City, interest and sinking fund charges paid or accrued upon money used or securities issued to pay for the Transit Facility during the period of construction and for one year after the completion of the work for which the indebtedness shall have been incurred.

(e) All expenses incurred in procuring the money necessary to pay for the Transit Facility including the cost of advertising, taxes, expenses of selling securities, and other expenses incurred in connection with the original issue of securities.

(f) Expenditures for repairs, replacements, or renewals of the Transit Facility made during construction or after it shall have been used in operation which, in the opinion of the Board, shall have been necessitated by faulty construction or design.

##### 2. Credits to Cost:

If any increase or profit (other than increase or profit resulting from operation) from whatever source derived, including interest on deposits of construction funds, shall accrue in any manner out of or in connection with any Transit Facility, the amount of any such increase or profit shall be applied to reduce the cost of the said Transit Facility.



Article X. Records of the Cost of the City's Transit

The City shall provide vouchers to cover all items of the cost of the City's Transit Facilities, and these vouchers shall be accessible for inspection and audit by representatives of the Company and of the City. All shall be matters of public record.

Article XI. Records of the Cost of the Transit Facilities  
by the Company for the City

The Company shall provide vouchers to cover all items of the cost of the Transit Facilities to be furnished by the Company for the City. The original vouchers and canvasses of bids for the said Transit Facilities shall be accessible for the inspection and audit of the Board and of the City Controller, and shall be matters of public record.

Article XII. Capital Requirements of the Company and interest and Sinking

The Company undertakes to obtain from time to time sufficient new capital to meet its requirements for additions, betterments and extensions to its own System, for refunding and other capital expenditures and for the Transit Facilities to be furnished by the Company for the City.

The method of procuring the said capital and the rate of interest or dividend thereon, and the program of amortization or retirement thereof, shall be approved by Councils, as provided in Section Second of the 1907 Contract.

In case the new capital be procured by an issue of preferred stock payments for the amortization thereof shall be made to the Sinking Fund Commission. The said fund shall be held for the purpose of retiring the said preferred stock and shall be invested by the said Sinking Fund Commission in the said issue of Preferred stock.

In case the new capital be procured by an issue of bonds, debentures or notes, payments into a sinking fund for the amortization of the same shall be made to the trustees for the said issue and shall be invested by them in the said issue of securities if the same can be purchased in the market at a cost not to exceed one hundred and five (105) percentum of the par value thereof with accrued interest.

If the said shares of stock or securities cannot be purchased in accordance with the terms of this Article, the funds shall be invested for the time being in such securities as may be proper legal investments for trustees under the laws of Pennsylvania.

The Company shall not be in default under any of the terms or conditions of Article IV, and of this Article, if it cannot procure the capital to comply with the requirements of these Articles upon such terms as approved by Councils.

Article XIII. Provisions in Case of the Company's Failure to Supply Transit  
Facilities for the Use of the City

In case the Company shall fail to furnish the Transit Facilities required to be furnished by it for the initial operation of any part of the City's System--or thereafter shall fail to keep the said part fully and properly supplied with the said Transit Facilities--The Board shall give to the Com-





pany Notice of such default shall be given to the Board within such reasonable time as may be specified by the Board.

In case the Company shall fail to make good the default specified, and any extension or extensions of time granted by the Board, the City may:

1. Supply such Transit Facilities, in which case interest on the cost thereof shall be paid to the City out of the funds provided for Item 4 of Article XX, Paragraph 1.
2. Bring a suit for specific performance, for the appointment of a receiver, for an injunction or for such other form of relief as the court may deem equitable and proper under the circumstances.
3. Avail itself of each and every legal or equitable remedy now or hereafter existing.

Each and every remedy shall be in addition to every other remedy, and may be exercised from time to time and as often and in such order as may be deemed expedient by the City, and the Exercise or the beginning of the exercise of one remedy shall not be deemed a waiver of the right to exercise at the same time or thereafter any other remedy, except that no two inconsistent remedies shall be exercised at the same time.

No action hereunder shall, however, impair in any way the lien or security of any securities of the Company theretofore duly issued in accordance with the provisions of this Contract.

#### Section C

#### LEASE

#### Article XIV. Property and Lease

The City hereby leases to the Company for maintenance and operation the City's Transit Facilities, if, and when constructed or purchased, the rental and under the conditions of this Lease.

The term of this Lease shall be co-extensive with the term of the contract of which this Lease is a part.

#### Article XV. Possession

##### 1. The Company's Possession.

The Director shall give Notice to the Company specifically stating when each Individual Operating Section of the City's System will be completed, equipped and ready for operation, and the Company shall take possession of such Individual Operating Section of the City's System at midnight on the day specified in such Notice, and shall immediately thereafter begin operate such Section. The Company shall thereafter remain in possession during the term of this Lease.

##### 2. Access of the Company to the City's Transit Facilities Prior to the Company's Possession.



5. Access of the City, the Department, and the Board during the Company's Possession.

After the Company shall have taken possession of the City's Transit Facilities, the Company shall permit the City to have access to the same at all reasonable times for the purpose of completing any of the City's Transit Facilities and for the purpose of making alterations, additions, extensions, replacements or renewals. The Company shall also permit the representatives of the Department to have access to any of the City's Transit Facilities at all reasonable times and shall furnish the necessary conveniences for the inspection thereof by the said representatives.

The Company shall also at all times permit representatives of the Government to have access to all parts of the Unified System for the purpose of inspecting the Transit Facilities thereof and the records thereon, and shall also furnish free of charge such personnel and information as may be required for such inspection.

Article XVI. Disposition of the Company's Funds on Hand Shall Become Effective

Immediately after this Contract shall have become effective, the amount of the Company's Initial Surplus and the amount which it shall have accumulated in its Renewal Reserve shall be not less than the amount provided for in Article XXIII, Paragraph 2 hereof, and the cash and securities which the Company shall on said date have accumulated in its Reserve Fund for Renewals, together with each of its capital assets in excess of to any excess of the Company's Renewal Reserve over its Reserve Fund for Renewals shall thereupon become the Depreciation Reserve Fund for the Company's System (Fund C) as specified in Article XXII. The Initial Surplus, the New Surplus and the Depreciation Reserve Fund for the Company's System shall remain in the custody of the Company.

The Initial Surplus to the extent that the same may be available at any time in cash or marketable securities shall be used to make up deficiencies in Gross Revenue in accordance with the provisions of Article XX, Paragraph 3, or may be used by the Company, subject to the approval of the Board, for additions, extensions, betterments, refunding and other capital requirements, or for renewals and replacements. The Company shall not, however, be required to deplete its available Initial Surplus to an extent greater than two million (2,000,000) dollars to set aside in connection





as prescribed in Article XX, Paragraph 3 (b).

#### Article XVII. Operation

##### (a) Operation of the Company's System Prior to the Initial C the City's System.

From the date upon which this contract shall become effective until the initial operation of the first Individual Operating Section of the City's System, the Company shall operate its own properties as hereunder the subject to the terms and conditions of the 1907 Contract, as herein modified, and subject to the terms and conditions of this Contract.

The Company shall continue to make use of the cash and securities in its various funds from time to time for the operation of its properties, to the extent that they shall be used temporarily to finance capital requirements, the approval of the Board shall be required. Whenever new securities shall have been authorized by Councils under Section Second of the 1907 Contract, the same shall be used with securities or the proceeds thereof.

##### (b) Operation of the Unified System.

As soon as the first Individual Operating Section of the City's System shall have been completed and the Company shall have installed the Facilities which it is required to furnish for use thereupon or in connection therewith under Article V of this Contract, and from time to time as other Individual Operating Sections of the City's System shall have been completed and the Company shall have furnished the Facilities which it is required to furnish for use thereupon or in connection therewith, the Company shall assume operation thereof and shall combine and consolidate the operation thereof with the operation of the Company's System in order to give to the public one Unified System of transportation.

Subject to such limitations and rights of revocation as the Board may impose, the Company shall have the right to place advertisements of unobjectionable form and nature in cars and stations of the City's System, and to establish news stands and other vending privileges at such stations, but the Company shall submit to the approval of the Board the Contracts for leasing such privileges.

Subject to such restrictions as the City may impose, the Company may use the Unified System for the carriage of freight, mail, express and other unobjectionable transportation matter: Provided, however, That such use shall not interfere with the use of the System to its fullest capacity for all passengers who shall desire to be carried thereupon. Within the limits aforesaid the City may require the Company to carry freight, mail, express and other unobjectionable matter.

#### Article XVIII. Rental

As rental for the use of the City's Transit Facilities the Company shall make payments to the City out of the Current Net Revenue as specified in Article XX, Paragraph 1, Items 7 and 8, as and if earned by the Unified System. Payments shall be made quarterly on or before the first day of each January, April, July and October, covering the operation for three months' periods ending December 31st, March 31st, June 30th, and



September 1st, 1913, and, if necessary, shall be paid quarterly period.

The term "annual current net revenue" will be "the annual current net revenue" in Transit Facilities as defined in the amendment to Section 8, of the Constitution of the Commonwealth, passed by the General Assembly in 1913 and 1915 and duly approved by the vote of the people at the November election in 1915.

The City reserves the right from time to time to determine what portion of the interest and dividend on the investment in Transit Facilities shall be borne by the car-rider and what portion shall be borne by the taxpayer, and may from time to time as it shall determine to be for the best interests of the City by ordinance specify that any or all of the City's investment in Transit Facilities shall be withdrawn from the rental payable under this Contract, and in case of the passage of any ordinance so withdrawing for any specified length of time any portion of the City's investment in Transit Facilities, the City Controller in giving the certification required by Article XXIII, Paragraph 1 (c), (which certification is to determine the amount of the City's capital investment upon which the payments under Article XX, Paragraph 1, Items 7 and 8 are to be based), shall omit from the amount of the actual investment in Transit Facilities upon which the amount of the City's investment so withdrawn by ordinance; and in determining the fare required of the Unified System, the fare for the use of the Transit Facilities leased hereunder shall be taken as the fare for the use of the Transit Facilities leased hereunder.

#### Article XIX. Gross Revenue

Gross Revenue shall consist of the gross receipts from the operation of the Company's System, including receipts or gross earnings, interest on deposits, interest on the Company from securities of underlying companies, or other income derived by the Company directly or indirectly from the operation and use of the Company's System from the date upon which this Contract shall become effective to the initial operation of the first Individual Operating Section of the City's System, and the use of the Unified System.

#### Article XX. Disposition of Gross Revenue

##### 1. Deductions from the Gross Revenue.

In order to determine the amount of the Gross Revenue to be paid to the City is to be paid and the Company is to receive its annual return, from and after the date upon which this Contract shall become effective, there shall be deducted from the Gross Revenue, in the following order of the Items, the amounts necessary to meet the following charges:

Item 1. All expenses, including interest on the Company's System until





the beginning of the operation of the Unified System,  
the operation of the Unified System.

Item 2. All taxes that may be assessed against the Company for its indebtedness incurred or securities issued to pay for the purchase of the City's Transit Facilities, and in respect to the construction or operation of the City's System, and all taxes, licenses, charges now or hereafter lawfully levied or assessed by any local authority or which the Company may be required to pay for the operation of the said City's System or the operation thereof, on the Company's capital stock, property or franchises, or its debt and the interest thereon, its exercise of its franchises, its business, its assets, its income, its profits, or dividends paid, and all taxes, licenses, assessments imposed upon any company whose property is owned by the Company or is leased to or operated by it and which under the terms of its lease or operating agreement therefor the Company is obligated to pay, and all contributions, however styled, which the Company may at any time be fully required to contribute to any governmental agency, except taxes due to the City on dividends, provision for which is made under Item 6 ( ) hereof. The amount of taxes assessed against or payable by the City, deducted under this Item, shall be paid into the City Treasury.

Item 3. All payments of every kind or character in the nature of charges for which the Company, at the date upon which this Contract shall become effective, shall be obligated or liable under any mortgage, mortgage or refunding of such mortgage, lease, operating agreement or other form of contract as shown by the audit to be made as of the date upon which this Contract shall become effective, as provided by Article XIII.

Item 4. Interest and sinking fund payments on new capital stock of the Company, issued as provided in Article XII.

Item 5. Payments into the Depreciation Reserve Funds as specified in Article XXII.

Item 6. (a) The sinking fund payments provided in Section Ninth of the 1907 Contract; (b) all payments due to the City for taxes on dividends to the stockholders of companies owning the leased and subsidiary lines of the Company as the same are imposed by the respective charters of the said companies; (c) all payments due to the City under Section Tenth of the 1907 Contract.

The balance shall be the Current Net Revenue, out of which shall be made the following payments:

Item 7. Payments to the City and the Company in proportion to the relative investment of each equal to a return of five (5) percentum annum on such investment.

The Company's investment is fixed at the amount or par value of its capital stock now authorized and issued, viz.: Thirty million (30,000,000) dollars, less any installments remaining unpaid on any shares.

For the purposes of this Item the City's investment shall be of the City's Transit Facilities leased hereunder computed according to



the provisions of Article III of the Constitution of the City of New York, Chapter XXIII: Provided, however, that the return on the bonds of the City's Transit Facilities constituting the Initial Surplus of the City's System, respectively, shall be paid out of the Current Net Revenue until after the expiration of the date of the beginning of the operation of such Section.

Item 3. Payments to the City shall equal to the difference of payments to the City under Item 7 of the City's System, and the interest sinking fund charges upon the City's bonds, respectively, and the provisions of Article XXIII.

## 2. Payments to be Cumulative.

The foregoing payments to the City shall be cumulative. Payments under Items 1 to 5 inclusive shall be cumulative and shall be made before any application of Gross Revenue to subsequent years to current payments. If, after application of Gross Revenue and the use of the Initial Surplus, as provided in Paragraph 3 (b) hereof, there shall remain in any year a deficit in payments due under Items 6, 7 and 8, the City shall not be required to pay out of subsequent current Gross Revenue until all payments due in any year shall have been paid and the City's Initial Surplus shall be stored to the extent that it may be depleted in any year as provided in Paragraph 3 (c) hereof. Thereafter any deficits in Items 7 shall be paid before deficits in Items 6 or 8.

## 3. Accumulation and Distribution of Surplus.

### (a) Accumulation of Surplus.

In order to provide for accumulating funds for distribution in future payments under this Article, all balances remaining after payment of the eight Items specified in Paragraph 1 of this Article shall be credited to surplus.

### (b) Distribution of Surplus.

If, in any year, the Gross Revenue shall not be sufficient to pay in full for all of the obligations of the City under the provisions of this Article, the New Surplus shall be applied to the deficit in payments under Items 6 and to the extent that may be necessary to make full payment thereof, and thereafter the balance of the New Surplus shall be applied to the deficit of two million (\$2,000,000) dollars shall be applied to any deficit in the same manner. Should there still be a deficit accumulated and not provided for in Paragraph 1 hereof.

It is, however, stipulated that in case of the destruction of, or serious damage to, a substantial part of the Unified System, or a continued interruption of normal operation resulting in suspension or curtailment of payments under Items 5, 6, 7 or 8, the City shall be permitted to make use of its Initial Surplus, if it has not been depleted, or if it has been depleted in the amount of the Initial Surplus, or more, and not restored; nor shall the City be required to make any





make up deficits occasionally incurred caused by payments out of its Initial Surplus in an amount not exceeding the total depletion of the Initial Surplus at the time to one thousand (500,000) dollars.

It shall not be incumbent upon the Board to file a schedule of fares and charges which will come into effect, unless the Board shall sanction payments on account of such deficits out of after-acquired New Surplus.

(a) Abolition of Exchange Tickets.

Within sixty (60) days after this Contract shall become effective, exchange tickets shall be abolished outside of the Delivery District, and universal free transfers shall be substituted therefor.

(b) Initial Fares.

Until a revision of fares under this Article, the fares within the limits of Philadelphia shall be as follows:

From the date upon which this Contract shall become effective, the fare of five (5) cents.

Free transfers as heretofore, and within sixty (60) days after this Contract shall become effective, free transfers for all passengers desiring to transfer in a forward direction as follows:

1. Between all lines of the Company's Surface System at intersecting and connecting points outside of the Delivery District, and as now established within the said District.
2. Between all lines of the Company's Surface System and the Market Street Line where surface lines intersect the Market Street Line at station points outside of the Delivery District.
3. Between all lines of the City's System where communicating stations exist at points of intersection and connection.
4. Between all lines of the City's System and the Market Street Line where communicating stations exist at points of intersection.
5. Between all lines of the City's System and the present Surface System, or extensions thereof, where the lines of the present Surface System, or extensions thereof, intersect or meet the lines of the City's System at station points outside of the Delivery District.
6. Between all lines of the City's System and between all lines of the Company's System and between all lines of the City's System and Company's System where communicating stations exist.

Provided, however, That the Company shall not be obliged to issue a transfer on a transfer on the surface lines, except where the use of a high-speed line intervenes.



No transfer shall be allowed for the return journey on the same, and the Company shall be subject to the approval of the Board, to make such change, giving away or other misuse of

On the opening of the first Individual Operation of the Line, exchange tickets shall be substituted therefor, except that the unnecessary congestion of traffic from time to time points within the Delivery District as

(c) Revision of Fares Upward.

The understanding of the parties and the basis of this the fares shall be such as will produce sufficient Gross Revenue to the deductions under the first six (6) items of Paragraph 1, Article XX, and to provide Current Net Revenue sufficient for a cumulative five (5) percentum upon the Company's investment in the City's investment, the payments shall be made in Article XX; and that if and when the result of the abolition of the exchange tickets, shall be shown to be such a of current Gross Revenue that all of the said payments cannot be currently met and the Initial Surplus shall be depleted to the extent of five hundred thousand (500,000) dollars, then there shall be a revision of fares upward in accordance with the provisions of this Article.

In case at any time there shall be a shortage of Current Net Revenue for these payments and the New Surplus shall have been exhausted and the Initial Surplus depleted to the extent of five hundred thousand (500,000) dollars, there shall be such a revision of fares upward as will produce Revenue sufficient to meet all of the requirements of Article XX, Paragraph 1, and make up within a reasonable time the Initial Surplus. Any deficit in payments of the various Items in former years as provided in Article XX, Paragraph 2.

Revision of fares upward shall be as follows:

Within thirty (30) days after the Initial Surplus shall at any time been depleted to the extent of five hundred thousand (500,000) dollars, the Board shall prepare and file with the Commission a schedule of fares and charges which, in its opinion, will produce said amount of Gross Revenue.

Whenever the result of operations for two consecutive years under any schedule of fares and charges shall be such that the Gross Revenue to meet all the requirements of Article XX, Paragraph 1, and a surplus over and above the requirements of Items 1 to 6 inclusive at such rate as will make up within a reasonable time the Initial Surplus and any shortage in former years as provided in Article XX, Paragraph 2; or, whenever at any time after the Initial Surplus shall have been depleted to the extent of five hundred thousand (500,000) dollars and up current payments, the Board shall, within thirty (30) days, prepare and file with the Commission a new schedule of fares and charges effective within thirty (30) days which in its opinion will produce said amount of Gross Revenue.





Should the Board of Directors of the Company in which there shall have been added to it any Individual Operation of the City, indicate to the Board that the schedule of fares and charges will not produce sufficient Gross Revenue to meet the requirements of Article XX, the Board may, in its discretion, prepare and file a new schedule of fares and charges to meet the requirements outlined herein, which schedule shall be subject to the approval of the Board. The cost of such Individual Operating Section shall be entitled to return under this Contract.

In case the Board of Directors of the Company shall not become effective within thirty (30) days or shall be suspended for any day, until rates shall be made effective which shall be sufficient for the purpose outlined herein, suspend its current payments to the City under the 1907 Contract, being the payments included in Item 6 of Article XX hereof, to such extent as to be sufficient to meet current requirements.

(d) Revision of Fares Downward.

Fares and charges shall be revised downward if for two (2) consecutive years there shall be a surplus increasing in a substantial amount annually, provided the New Surplus shall equal or exceed at that time two million (2,000,000) dollars.

The change of fares shall be effected as follows:

The Board shall, within thirty (30) days after the New Surplus and increasing tendency shall have been shown by the Board, filed hereunder, prepare and file with the Commission a schedule of fares and charges which, in the opinion of the Board, will reduce the Gross Revenue, without, however, impairing the ability of the Company to meet the first eight (8) items out of the current Gross Revenue after the application to the said Items in each year of not exceeding one-half of the New Surplus accumulated under this Contract at the time of the filing of the schedule.

Any schedule of fares and charges so filed by the Board shall take effect within thirty (30) days.

Further changes in fares and charges downward, shall be made in the same manner and subject to the same conditions whenever New Surplus shall have been accumulated to the extent and in the manner hereinbefore described.

In case the City at any time by ordinance shall withdraw from the requirements under this Contract any portion of the investment in Transit Facilities as provided in Article XVIII, and the results of the operation of the Unified System in the previous year indicate to the Board that the existing schedule of fares and charges will not produce more than necessary to meet the fare requirements as specified in this Article, then the Board shall forthwith prepare and file with the Commission a schedule of fares and charges which will produce the Gross Revenue to the amount of the interest and sinking fund charges upon that portion of the investment so withdrawn from rental requirements; Provided, however, That the Gross Revenue shall not be



reduced in the proportion to the amount of the reduction specified.

APPROXIMATE INDEX.

1. Funds.

## 2. Salvage.

### 3. Custody and Control.





Facility or facilities, the  
such fund.

Any amounts in such funds not currently  
specified shall be securely invested and reinvested by  
custody (subject to the approval of the  
proval of the Board), in the bonds, notes or  
pany provided they can be purchased at a cost not to exceed  
thereof with accrued interest, or in such securities  
profits accruing thereon.

4. Disposition of funds.

At the termination of the term of the  
of Article XX, Funds A and B shall  
be retained. The provisions of Article XX, paragraph 1, shall  
recapture and the provisions of Article XX, paragraph 2, shall  
be paid to the City.

Article XXII.

## 1. Certificates.

On or before the thirtieth day of January, April, July and October, of  
each year, the City Controller shall certify to the Board and in form and detail as prescribed  
certified by the Board and in form and detail as prescribed, and, within  
three months' periods ending March 31st, June 30th and September 30th, the following:

(a) The Gross Revenue and the several Items of deduction from  
Revenue paid, accrued, or otherwise properly charged to, for the three  
months' period. The amount of the interest and sinking fund charges  
for expenses of the City's Transit Facilities upon which the City shall  
which this Contract shall become effective.

(b) The amount of new capital furnished by the Company shall be entitled to receive interest and sinking fund  
the Company shall be entitled to receive interest and sinking fund  
ments for the said quarterly period.

(c) The amount of the City's Transit Facilities upon which the City shall  
be entitled to receive payments for the said quarterly period under Article  
XX, Paragraph 1, Items 7 and 8, and the amount of the interest and  
sinking fund charges thereon, as per a certificate of the City Controller  
furnished to the Board less any portion of the cost of the City's Transit  
Facilities withdrawn from rental hereunder and the interest and sinking fund charges on such portion.

(d) The amount of the capital stock of the Company now authorized  
and issued, less any installments remaining unpaid on any shares.

## 2. Audits.



A complete audit of the accounts of the Company, made by the Director, shall be made by the City Councils at the expense of the Company. The accounts shall be audited annually in accordance with the provisions mutually agreed upon by the City Controller and the Company; and the audit shall be made by the City Councils and to the Company. For that purpose the City shall have access to the books, records and memoranda of the Company and require the examination, under oath, of any of its officers or cost of such annual audit shall be paid by the Company out of Gross Revenue as part of the operating expenses.

If exception be taken, either by the public accountants or the City Controller, to the propriety of any charges appearing in the accounts of the Company, or by either the public accountants or the City Controller to the propriety of any charges appearing in the accounts of the City, as to the cost of the City's Transit Facilities, the Board shall pass upon and finally determine for all the purposes of this Contract the charges to which exception shall have been taken.

#### Article XXIV. Dividends.

The Company hereby waives the cumulative provision under Section Sixth of the 1907 Contract as to its dividends for the period January 1, 1907, until the date upon which this Contract shall become effective, and the provisions of this Contract with respect to the distribution of Net Revenue shall supersede the provisions of said Section Sixth of the 1907 Contract as long as this Contract and Lease shall continue in effect.

So long as this Contract shall continue in effect the Company shall not pay or accumulate any fund to pay dividends on its present issue of capital stock in excess of five (5) per cent per annum, until the date upon which this Contract shall become effective.

#### Article XXV. Insurance of the City's Property.

The Company shall keep insured against fire and other usually insurable accident or contingency all property of the City's System liable to be damaged thereby to such extent as the Board may determine; such insurance may be effected by the establishing of an insurance fund out of Gross Revenue with the approval and subject to the regulations of the Board.

#### Article XXVI. Destruction of Property.

In case of damage to or destruction of any of the City's Transit Facilities by war, riot, flood, earthquake or other extraordinary occurrence not ordinarily insurable, and generally comprehended under the term act of God or vis major, the same shall be repaired or replaced by the City and charged to the cost of the City's Transit Facilities.

#### Article XXVII. Right of Recapture Reserved to the City

In addition to the right reserved by the City, under Section Eleventh of the 1907 Contract to purchase all of the property, leaseholds and franchises of the Company on or after July 1, 1957, the City shall have the right at any time after July 1, 1927, and until or upon the termination of the





Contract or any extension thereof upon giving Notice of its intention so to do, to terminate its own property and acquire all of the Company's properties and franchises by paying to the Company an amount equal to the amount which shall have been paid of its capital stock outstanding at the time of the purchase together with (a) any dividends on new capital stock unpaid together with (a) any dividends on new capital stock unpaid XX, Paragraph 1, Item 1, (1) at the rate of 10% per annum in each year from the date upon which this Contract shall become to the date of recapture. In the event of such termination, recapture and purchase, the City shall assume or pay all due and accruing current liabilities of the Company, including all current liabilities, and there shall be paid over to the City all cash, securities, and other tangible and intangible assets in the hands of the Company or which shall have accumulated in the custody of the Sinking Fund Commission.

#### Article XXVIII. Right to Dissolve Unified System Reserved to the City

1. At the termination of this lease, on the first day of July, 1957, or, under the provisions of Article XXX, the City shall have the right to dissolve the Unified System and re-acquire the City's System.

In case the City shall dissolve the Unified System, the Company shall:

(a) Surrender to the City all of the City's Transit Facilities in good condition and repair, except for natural deterioration, and subject to the provisions of Article XXVI.

(b) Surrender to the City all of the Transit Facilities Furnished by the Company for the City: Provided, That the City shall pay to the Company an amount equal to the original cost of such Facilities Furnished by the Company, less the following amounts, which shall be credited to the City:

(i) Any repayment of such cost, or any part thereof, not represented by an issue of securities which the Company shall have already received, or may receive, at the time of surrender through the operation of an amortization fund, or otherwise.

(ii) The amount of any stocks, bonds, or other securities, issued by the Company to procure money expended in acquiring such Transit Facilities, if such securities shall have been fully amortized or if the City shall assume the amortization.

(iii) The amount of amortization which shall have already taken place with respect to any issue of stocks, bonds or other securities issued by the Company to procure money expended in acquiring such Transit Facilities and not assumed by the City.

Provided, That in case the Company shall have used any stocks, bonds, or other securities, shall have been used in the acquisition of Transit Facilities Furnished by the Company for the City, and in part to acquire Transit Facilities, additions, or extensions to the Company's System, the Board shall determine and certify what portion of the proceeds



of the sale of such facilities, the Company to acquire Transit Facilities furnished the City.

(c) Pay to the City the City's share in the then existing

2. In case the City shall dissolve the Unified System in violation of Paragraph 1 of this Article, the Initial Surplus shall be retained by the Company and the respective shares of the Company in the New Surplus shall be proportioned to the then relative investment, as defined in Article III, Section 1, of this Lease, except that should the City, because of the Company's default, the Initial surplus and the Company's share of the same shall be paid to the City to pay any damages awarded by the court to the City.

#### Article XXIX. Protection of the City Against Damage Claims

The Company shall assume and save the City harmless from any claims or court actions, from injuries to persons or property caused or alleged to have been caused by any act of negligence of the Company in maintaining and operating the City's System or in furnishing transit facilities as provided in Article V. All payments made by the Company shall be charged to the City under Article III, Section 1, of this Lease.

#### Article XXX. Provisions in Case of the Company's Default

In case of the default of the Company in fulfilling any of the conditions, obligations or requirements of this Lease, or the Contract of which this Lease is a part, the City upon reasonable notice to the Company of its intention so to do may, at the expiration of the said Notice, or within such further time as may be allowed by the City or by the Court:

1. Enter upon and, as agent of the Company, operate the Unified System at the rates of fare established by and subject to the provisions of the Contract for the remainder of the term, or for such period as may be determined by the court.
2. Enter into a contract, subject to the same conditions, with some other person, firm or corporation to operate the Unified System as the agent of the Company, for such period of time.
3. Apply for the appointment of a receiver to operate the Unified System, and in conjunction therewith may take such further action as may serve to protect the rights of the parties hereunder.
4. Apply for a cancellation of the Lease, and the exercise of the same shall form a part.
5. Avail itself of each and every legal or equitable remedy after existing.

Each of such remedies shall be in addition to any other remedy and may be exercised from time to time, and in such order as may be deemed expedient by the City, and the exercise of the beginning of the





exercise of one remedy shall not be deemed a waiver  
else at the same time or thereafter. Inconsistent remedies shall be mutually exclusive.

Operation by the City or its agent of the Unified System shall be subject to the provisions of this Contract, had only by order of the court pending a determination of the parties or a curing of the default, and be subject to such order of court may make in the premises at the instance of either party, Unified System shall be restored to the Company for operation on the terms and conditions of this Contract whenever the default has been cured or the court shall order such restoration of the Unified System.

Neither default by the Company under the provisions of this Contract or this lease, nor the termination of this Lease upon default or otherwise, shall impair the validity of any mortgage or other securities which the Company may have made in accordance with the provisions of this Contract.

#### Section D

#### ARTICLE XXXI

#### Article XXXI. Supervising Board

##### 1. Organization of the Board.

A Supervising Board, to consist of three members, the City's representative shall be the Director of the Department of Public Works. The Company's representative shall be appointed by the Company from time to time, and may be removed at any time by the Company. The third member, who shall be Chairman, shall be appointed by the City and the President of the Company for a term of four years, and shall be subject to removal at any time by joint action of the City and the President of the Company. Should the parties fail to agree upon a Chairman, the duties of the Board shall be performed by the two members, and in case at any time any question arises upon which the two members differ, or as to which they may desire advice or assistance, they may agree upon a temporary arbitrator, who shall be experienced with respect to the matter in hand. The appointment of such arbitrator shall be effected by a writing signed by both members, and shall specify the subjects with respect to which he is to act. Should the two members fail to agree upon such temporary arbitrator, either party to this Contract may, on five days' notice to the other, apply to the Commission, which shall then make the appointment.

##### 2. Office and Assistants; Salaries and Expenses.

The Board shall maintain an office within Philadelphia and shall employ the necessary assistants and purchase the necessary supplies and materials to enable it properly to perform the duties and obligations imposed upon it, and fix the salaries of its assistants and employees.

The Compensation of the City's representative shall be fixed by the City. The Compensation of the Company's representative shall be fixed by the Company.



The compensation of the arbitrator shall be fixed by the Board in each instance.

All salaries and expenses of the member appointed by the City (which shall be paid out of Gross Revenue and charged to operating account) shall be paid by the Board.

### 3. Powers and Duties of the Board.

The powers and duties of the Board shall be:

1. To report to Councils upon the advisability, reasonableness and necessity of new lines, extensions or equipment, or of any modification of the Transit Facilities, and to make recommendations thereon, including the review or compilation of cost estimates for construction and operation of the Company's Transit Facilities. On its own initiative, to bring proceedings before the Commission to regulate the operation, extension or extensions to the Company's Transit Facilities.

Article IV.

2. To submit to Councils and to the Company certificates (a) Gross Revenue and Deductions from Gross Revenue, (b) the amount of new capital stock authorized, (c) the amount of the Capital Stock of the Company, and (d) the amount of the Capital Stock of the Company as specified in Article XIII.

3. To pass upon and approve or disapprove the specifications for and the construction of the Transit Facilities by the City or by the Company, and to inspect all work and materials to be furnished by the Company. The Board, however, shall have no power to alter the location or to curtail or postpone the construction of any line which has heretofore received or which may hereafter receive authorization of the City by a vote of the people or ordinance of Councils.

4. To pass upon, adopt, and alter, from time to time, the necessary, rules and standards for the operation, extension and suitability of equipment as in its opinion may be necessary or appropriate for securing the safe and efficient operation of the Transit Facilities.

5. To approve the terms and conditions of contracts to be entered into by the Company for the purchase of power. To approve the terms and conditions of contracts for the purchase of land, easements or other privileges in connection with the operation of the Transit Facilities. To establish, omit, or change station and stopping points on all lines operated by the Company.

6. To file with the Commission, from time to time, schedules of fares and charges to comply with the provisions of Article VII.

7. To decide upon the amount and approve the investment and disposition of the Depreciation Reserve Funds A, B, and C, as provided for in Article XIII.





8. To secure a final legal determination, for any payment under Article XX, Paragraph 1, the Company having the right to make such payment. The right is herewith reserved to the City, if it deems it advisable or necessary, to have the City Solicitor ask leave of the Board to file briefs and take part in the argument of any question involving liability of the Company for any such payment, and the Company agree to join in any such application.

9. To require the Company to secure a final legal determination, for any payment under Article XX, Paragraph 1, before making the same in any case in which the Board has doubt as to its liability to make such payment. The right is herewith reserved to the City, if it deems it advisable or necessary, to have the City Solicitor ask leave of the Board to file briefs and take part in the argument of any question involving liability of the Company for any such payment, and the Company agree to join in any such application.

10. To act as a Board of Arbitrators as provided in Article XXXV.

11. To recommend to Councils the terms and conditions upon which lines outside of the City, constructed by private enterprise, and operated by the Company, and upon which such lines may use the Transit Facilities operated by the Company under this Lease.

12. Any other powers or duties specified in this Contract.

#### 4. Quorum and Procedure.

A majority of the Board shall at all times be authorized to exercise the powers conferred on the Board by this Contract and to make rules and regulations for all operations of the Board. The Board shall keep on file all statements, accounts, and vouchers, including all salaries, orders and vouchers covering the disposition of funds for which the Board acts as agent, and all matters of the Board, shall be acted upon at regular meetings of the Board, special meetings regularly called, and proper minutes of all such meetings shall be recorded and kept on file available to the City and to the Company for reference. Provided, however, That in case there is no Chairman of the Board, and the Board is divided, the Board shall have jurisdiction, in and to the effect that the joint ruling of any two of the three individuals (viz., the two members of the Board and the arbitrator) shall constitute the ruling of the Board in the matter, and shall be final unless an appeal be taken to the Commission as provided in Paragraph 6 of this Article.

The Board shall hold public hearings for the purpose of receiving suggestions for new lines or extensions thereof or additions to Transit Facilities; all proposals to change fares; and upon such other matters from time directed by Councils.



5. Deposits of Funds; Audit.

Any sum of money which the Board may determine to deposit in a capital stock and surplus amounting to at least one million dollars may be deposited with the Board as a depository for the funds which the Board is trustee under the provisions of this Contract, and the funds shall be deposited with any such depository by the Board.

Funds and securities of which the Board is trustee shall be complete detail annually by public accountants jointly selected by the Company and the City Controller, and the public accountants shall submit a detailed report to the City and to the Company.

6. Acceptance of the Board's Rulings.

The Company shall obey the orders of the Board made in the exercise of the powers conferred upon the Board by this Contract; but nothing herein contained shall deprive the City or the Company of the right, if it believes any order of the Board concerning a matter within the jurisdiction of the Commission to be unjust or unreasonable, to petition the Commission to make such order in the premises as to it shall appear just and reasonable. Pending the decision of the Commission upon any such petition, the Company shall obey the order of the Board.

7. Limitation of the Power of the Board.

Nothing in this Article shall deprive the Company's officers and directors of the management of the Company's properties, nor shall anything herein contained be deemed a delegation to the Board of any of the powers of the Commission. It is the intention of this Contract to enable rules and regulations for governing maintenance and service to be made and complaints and petitions of patrons to be heard more expeditiously than by original application to the Commission: but nothing herein contained shall prevent any person from bringing before the Commission in the first instance any matter within its jurisdiction.

Section II

ARTICLE XXIII. RECEIVERSHIP.

Article XXIII. Receivership.

The Contract shall not be assigned, and the assignment of the Contract by the City shall be null and void.

The appointment of a receiver for the Company by the order of any court of competent jurisdiction shall not be considered an assignment or cause a termination of this Contract.

Article XXIV. Effect of Unlawful Provisions.

If this Contract contains any unlawful provisions not an essential part of the general structure of this Contract and which shall not appear to have been a controlling or material inducement to the making thereof, such





provision shall be deemed of no effect, and shall, either party, be severed from this Contract, and the force of this Contract shall not be affected thereby.

#### Article XXXIV. Inspection

The City, its officials, agents, employees, and representatives, through all divisions, departments, and subsidiaries, or all or any of them, shall have the right to prepare or cause to be prepared, and to have access to, and to inspect, and to take copies of, all plans, specifications, and drawings, and to be furnished by the Company for the City, and of the maintenance and operation of the Transit System. The Company shall therefore at all times give to the Board, and to any person designated by the Board, full facilities for inspection of the Transit System, and of the materials to be furnished by the Company for the City; and they or any of them shall be admitted at any time summarily and without delay to any part of the work or to the inspection of materials at any place or stage of their manufacture, preparation, shipment or delivery.

#### Article XXXV. Arbitration

If either the City or the Company shall desire to submit to arbitration any matter of difference arising under any provision of this Contract, such matter of difference shall be submitted to the Board as a Board of Arbitrators.

#### Article XXXVI. The 1907 Contract

Except as modified by this Contract, the 1907 Contract shall remain in full force and effect.

#### Article XXXVII. Term of this Contract

The term of this Contract shall be effective upon the day of its approval by the Commission, and shall continue until the first day of July, 1957, unless prior to July 1, 1957:

1. The City shall have terminated the Contract as provided in Article XXX.

2. The City shall have terminated the Contract as provided in Article XXX, and the Company as provided in Article XXVII.

The Company gives to the City, and the City gives to the Company, the 1907 Contract, either or both, from time to time, for successive periods of ten (10) years.

In Witness Whereof, the Board of Commissioners of the City of Philadelphia, sealed and delivered as of the eighteenth day of February, 1918.

(SEAL)

(Signed) Thomas B. Smith  
Mayor of Philadelphia.



Philadelphia Rapid Transit Company,

(Signed) T. E. Atkinson,

(SEAL)

Witness:

(Signed) R. B. Selfridge,

I, the undersigned certify that this is a true and correct copy of the Agreement executed the eighteenth day of February, 1911, between the City of Philadelphia and the Philadelphia Rapid Transit Company.

(Signed) G. T. Atkinson,  
Assistant Director, Department





1919



1919

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REPORT ON CITY TRANSIT SEPTEMBER 1919.

Handicaps to Progress Encountered During 1919.

During the year 1919 the department struggled to carry forward construction work upon the authorized High-speed System, but notwithstanding the use by the department of its best efforts to make real progress the year 1919 was a year of disappointments in transit development, as the Transit Department was again the victim of conditions beyond its control. At the very beginning of the year, January 14th, the Public Service Commission refused to approve the lease and contract which had been agreed upon between the City and the Philadelphia Rapid Transit Company in February of 1918. While it was acknowledged that that agreement was far from the ideal at which the City aimed when the decision was made to construct high-speed facilities, yet it was hoped that the commission would realize:

1. That no pronounced public sentiment for the municipal operation of the City's lines as a branch of the City's activities existed.
2. That the City's System was designed to function as a part of a unified system under the Philadelphia Rapid Transit Company's operation and management, and such use was understood by the public when the building of the system was decided upon.
3. That the Public Service Commission itself had previously approved of the construction by the City of a system of lines and the City at that time apprised the commission that the alternative of unified operation must be municipal operation with consequent competition with the Philadelphia Rapid Transit Company.
4. That if unified operation was to be secured the City and the Company each had to consider and recognize the conditions existing and the limitations of the other, and the contract submitted was simply a compromise which was agreed "to be fair alike to the City and the Company."
5. That the matter of fare should, in fact, be secondary to service, and that six years had been consumed in reaching that agreement and the public would be injured more by a continuation of delay than by the acceptance of contract which, while not ideal, would probably have provided good service, but at a cost somewhat higher than the ideal cost.

However, the refusal of the commission to approve the operating contract made the immediate redesigning of the City's System imperative; hence, steps were taken at once to secure the necessary enabling legislation, but the Legislature of 1919 adjourned without giving the City permission to hold a "referendum" on the system which the people authorized in 1916. The failure of all legis-



relative bills designed to directly or indirectly help the City in transit matters is greatly to be regretted. In August a taxpayer's suit was begun to test the validity of transit loans issued under the new City Charter which had become effective; as the result of this litigation the department has been unable to proceed with new contracts during the latter half of the year and work on older contracts has been much delayed by an exceedingly rainy summer and bad labor conditions.

Finally, in October, the Philadelphia Rapid Transit Company submitted to Councils a proposal to operate the Frankford Elevated on terms that the City could not accept in justice to itself, and thus this subject of developing and operating a unified system is again thrown into turmoil. The temporary withdrawal by the Company of the proposal does not in any way clear the situation.

Thus the year 1919 closes with the outlook for progress during the coming year far from bright. If the \$3,000,000 needed for the completion and equipment of the Frankford Elevated railway can be promptly made available, and an agreement for the operation of the line by the Philadelphia Rapid Transit Company is secured without delay, the first line of the City's comprehensive system can be put to work during the year 1920, but the much-needed high-speed service for the entire City, which appeared so near at hand in 1916, now seems to be steadily receding and only by a realization that the effect of the same changes that have occurred since 1916 in all other lines of human activity must be faced in connection with transit matters also can any real progress be made towards securing the service which the City so sorely needs.

#### EXPENDITURES MADE DURING 1919.

Construction-thirty-year loans .....	266,417.70
Construction-fifty-year loans .....	1,749,331.45
Acquisition of real estate-fifty-year loans .....	169,223.87
Engineering expenses (loan funds) .....	227,255.63
Interest and sinking fund on fifty-year loans .....	<u>194,844.55</u>
Total loan funds .....	\$2,610,093.21
Engineering, rent and miscellaneous (general funds) .....	<u>55,865.63</u>
Total expenditures during 1919 .....	\$2,665,958.84

The total expenditures made by the department from the initiation of the transit investigation on May 27th, 1912, to the end of 1919 were as follows:

Construction-thirty-year loans .....	4,459,365.02
Construction-fifty-year loans .....	4,125,813.93
Real estate-fifty-year loans .....	291,026.64
Engineering (loan funds) .....	1,046,368.86
Interest and sinking fund payments on fifty-year loans .....	<u>601,140.73</u>
Total loan funds .....	\$10,522,735.78





Engineering, rent and miscellaneous (general funds).....	<u>171,568.15</u>
Total expenditures, May 27, 1912, to December 31, 1919.....	\$11,600,518.23

The following statements will set forth the financial status  
of the transit project as of the close of 1919:



STATEMENT NO. 1 - SUMMARY AND APPORTIONMENT OF LOANS AUTHORIZED FOR TRANSIT DEVELOPMENT

Voted by people.	Date when loan was	Authorized by Ordinance of Councils (approved).	Appropriated to Dept. of City Transit.	Inter-est (Yrs.)	Term (Yrs.)	Item 160.	Item 180.	Item 210.	Amount of Loan	Issued to December 31, 1919
November 3, 1914	January 7, 1915	January 25, 1915	4%	30		\$500,000				\$500,000
April 29, 1915	June 30, 1915	July 2, 1915	(4%)	30			3,000,000			3,000,000
			(4%)	30			3,000,000			3,000,000
May 16, 1916	June 29, 1916	July 20, 1916	4%	30				\$57,100,000		\$57,100,000
Total										\$500,000 \$6,000,000 \$57,100,000 \$60,500,000

Appropriation - sold to Dec. 31, 1918.

Specific Allotment of Loan Funds - As voted by People

Reconstruction and relocation of sewers in central portion of the City -	\$500,000	500,000
Toward the construction of a subway railway in Broad Street with branches and the construction of an elevated railway from Front and Arch Streets to Rhawn Street -	6,000,000	6,000,000
Toward the construction and improvement of subways, tunnels, railways, elevated railways and other transit facilities-including interest during construction period and one year thereafter-\$57,100,000 to be used, applied and expended as follows:		
Broad Street Subway and branches		\$25,000,000
Frankford Elevated Railway		1,400,000
Thirty-fifth and-Bustleton and Byberry Surface Railway		1,200,000
Darby Elevated Railway		1,200,000
Parkway-Roxborough Subway-Elevated Railway		7,500,000
Subway Delivery Loop		7,600,000
Chestnut Street Subway		1,000,000
Local Petate and improvements		2,200,000

Total 500,000 \$6,000,000 \$57,100,000 \$60,500,000

1-15 of this amount ( \$60,000 ) reserved for interest and sinking fund charge.  
 Note:- see page 100 of the 1917 Annual Report for a chronological history of all appropriations to the Department of City Transit.





total payments from loan funds ....-374-.....10,722,735.78  
 outstanding contract liabilities as of December 31, 1919 .....2,528,136.17

STATEMENT NO. 2 - STATUS OF TRANSIT LOAN FUNDS AS OF DEC.31, 1919.

Amount of Loan		Total payments from loan funds to Dec. 31, 1919.	Unexpended loan funds Dec. 31, 1919.
Authorized	Issued to Dec. 31, 1919.		
\$500,000	\$ 500,000	\$477,484.28	122,515.72
6,000,000	6,000,000	5,134,506.49	865,493.51
57,100,000	4,000,000	5,110,745.01	-* 1,110,745.01
\$63,600,000	\$10,500,000	\$10,722,735.78	-* 1,222,735.78
served by Controller to meet interest and sinking fund payments of loans (No. 210), 15% of issue (\$4,000,000) \$600,000.00			
ended to December 31, 1919..... <u>601,140.73</u>			
unexpended reserve ..... -* 1,140.73			
n funds applicable to liabilities outstanding on account of con-			
tracts and real estate condemnation ..... \$221,595.05			
rdraft on consolidated loan funds.			

STATEMENT NO.3 -EXPENDITURES FROM TRANSIT LOAN FUNDS BY YEARS.

1915	1916	1917	1918	1919	Total expenditures
\$333,135.89	\$78,864.01	\$51,674.31	\$13,810.07	-----	\$477,484.28
113,436.57	\$1,844,871.76	\$790,175.08	\$470,175.08	5,134,506.49	
	\$1,915,469.01	\$2,374,176.72			
-----	16,247.05	\$580,403.11		2,139,918.21	5,110,745.01
\$446,572.46	\$2,010,580.07	\$3,178,540.86		\$10,722,735.78	
	\$2,476,949.18		\$2,610,093.21		

STATEMENT NO.4 - PAYMENTS AND LIABILITIES OUTSTANDING AGAINST TRANSIT LOANS AS OF DECEMBER 31, 1919.

Amount of funds authorized.	Bonds sold	Rate of Interest.	Total payments from loan funds	Total payments and contract liabilities.
Amount	Date			
\$500,000	\$500,000 1-1-16	4%	\$477,484.28	477,484.28
	( 3,000,000 7-1-16	4%)		
6,000,000	(2,000,000 11-1-18	4%)	5,134,506.49	5,140,933.44
	(1,000,000 3-1-19	4%)		
	(1,500,000 11-1-16	4%)		
57,100,000	(2,500,000 1-1-17	4%)	5,110,745.01	7,632,454.53
	7,500,000 .....	4%		
	3,000,000 .....	4%		
\$63,600,000	\$10,500,000 .....		\$10,722,735.78	\$13,250,872.25



### Status of Construction Work.

Work upon the Frankford Elevated Railway has progressed as rapidly as conditions permitted and work to the amount of \$4,000,000 has been done towards the completion of that structure.

No new subway work was begun during the year, but the continuation of work upon the City Hall Station and the Arch and Locust Streets sides of the loop continued as called for by the agreement with the contractor, entered into in July of 1918. Final estimates on all these subway contracts were rendered on the last day of the year, thereby closing up all subway work and leaving the Frankford Elevated Railway and the Thirty-fifth Ward Surface Line as the only portions of the City's System upon which work has been begun and is continuing.

### Status of City's Loans for Transit.

The Legislature of 1919 adopted a revision to the City's Charter intended to make illegal certain practices of the City in regard to paying current expenses by means of long-term loans. As the result of this legislation a taxpayer's suit was brought on August 20th in Common Pleas Court to restrain the City from proceeding with the issuing of bonds previously authorized for transit and other municipal purposes. The case was sent at once to the Supreme Court for final adjudication and on November 5th the Supreme Court rendered a decision that the unissued portion of transit and other authorized loans for capital use must be re-enacted and readvertised in order to conform to the provisions of the new charter. Accordingly, the ordinances were immediately prepared and introduced for the re-enactment of these loan measures by Councils in accordance with the decision. The time necessary for advertising and certification will prevent the sale of any loans for transit during 1919. The \$4,000,000 sold in 1917 is exhausted and overdraft has been made upon the consolidated loan funds to the amount of approximately \$1,500,000. The Controller has refused to certify further contracts for construction awarded after the filing of the taxpayer's suit on August 20th. The department has, therefore, been unable to start any new contracts since that date. As of December 31st, contracts aggregating \$586,500 are awaiting certification in the Controller's office and current monthly estimates to the gross amount of \$289,400 have been unpaid by the Controller, but against which orders aggregating \$122,300 have been issued awaiting the sale of loan funds for their redemption.

In previous reports I have called attention to the dangerous situation liable to develop as the outgrowth of the plan of capitalizing the interest and sinking fund payments on transit loans. That my fears in regard to this have not been unfounded is shown by the following letter to the Controller explaining the condition of affairs as of the end of this year, and I again urge that the financial features of the transit program be modified as soon as the necessary legislation can be secured, and that in the meantime Councils provide for these interest charges out of current funds until such time as it is fully demonstrated that the project will be at least partially self-supporting.





Progress Towards An Operating Contract For Unified  
Transit Service.

On January 14th of this year the Public Service Commission issued an order refusing to approve the lease and operating contract which the City and the Company had executed on February 18, 1918. The contract had been under consideration by the commission since it was submitted for the commission's approval on February 26, 1918, and approval was finally refused on the broad grounds that it was found to be not in the public interest.

In the 1918 report of the department I stated that the contract, as submitted, was a compromise, and like most compromises probably not wholly satisfactory to any of the interested parties. I then stated that the two chief objections to the contract from the City's viewpoint were:

1. That it was a confirmation of the Company's existing capitalization which was known to be excessive.
2. That it was an assurance of a fixed dividend upon the share capital of the Company.

In the objections raised by the commission the overcapitalization of the Company is not brought into question directly but indirectly, and in the concurring opinions of Commissioners McClure and Rilling it is evident that this was a controlling objection. I believe from the City's standpoint the assurance of a fixed dividend upon the share capital of the Company to have been even more serious than the objectionable capitalization. As stated in the 1918 report:

"The assurance to the Company of any fixed sum of money in return for its acting as the operator for the City's System is in the nature of a flat wage payment. Modern plans of efficient management are based on the theory that 'there must needs be some payment on the top of wages which will represent in money the Company's interest in efficient and capable management.'

"The assurance of any fixed rate of dividend to the Company without regard to whether it be 4, 5 or 6 per cent. removed all financial risk from the business and thereby kills all the incentives to economical management of the property by the Company. The principal advantage to the City in placing its system under private direction was to secure a more efficient management than could be obtained if operated by municipal employees; but by this provision of the contract efficient management is nullified and there is no certainty that the results will be superior to municipal operation. In order to secure the contract, a fundamental principle of business management has been sacrificed."

These objections, as stated, and the objections raised by the Public Service Commission seemed to make it almost impossible to redraw the contract so that it would eliminate all of these objections and receive the approval of the three parties who, under the law, must cooperate to make it effective, i. e., the Company, the City and the Public Service Commission. Although the director endeavored to enlist the





Company's interest in a renewal of negotiations for an operating contract, all efforts were unsuccessful. Evidently concluding that the temper of the public was such that it would favor the acceptance of any proposal which offered an immediate solution of the difficulty, the Company, without consultation with the department, prepared and had introduced in Councils on October 16th a series of ordinances. Of these ordinances the one proposing to amend the 1907 contract and the one proposing a lease of the Frankford Elevated Railway are the most important and objectionable. The director could not in any degree approve of these ordinances, but submitted, on November 14th, a counter proposition for the Company's operation of the Frankford line and an alternate proposition for its municipal operation. The counter proposition was promptly rejected by the Company and on November 20th the Company, acting through its president, asked permission to withdraw the ordinances, expressing the intention to renew negotiations with the incoming administration after January 1st.

The hearing by the Joint Committee, which had been set for November 21st, was therefore cancelled.

#### Legislation.

Immediately following the rejection by the Public Service Commission of the operating contract between the City and the Company, the director, with the approval of the Mayor, secured the drafting by the City Solicitor of an Act of Legislature providing for a referendum upon municipal loans which had been proved impracticable, impossible or unnecessary. The bill was introduced by Senator Salus on March 18th and referred to the Committee on Municipal Affairs of the Senate.

On April 8th it was reported out in an amended form. It passed second reading with the amendments on April 9th, third reading on April 21st, was recommitted to the committee on April 28th, reported as again amended on May 6th and passed final reading on May 7th. The bill was sent immediately to the House and on May 8th was referred to the Committee on Municipal Corporation, where it was placed in charge of a subcommittee of three members, the chairman of which was from Pittsburgh, one member from Elk County and the third from Philadelphia. On June 18th the subcommittee reported the bill negatively and thereby accomplished its defeat. This bill, which would have been of great value in making possible the reconsideration of the adopted plan of high-speed lines, was defeated by opposition of a political nature. Its enemies apparently gave no consideration whatever to its merits and its importance in assisting the City to unravel the skein of entanglements which changed conditions had brought about in the matter of the City's adopted plans for the high-speed system. The director appealed to the leading members and even directly to Governor Sproul in an effort to secure the passage of the bill, but the City's interests were again sacrificed on the altar of politics. The bills which the department had previously sponsored providing for through routing, etc., were all reintroduced in the 1919 session of the Legislature, but all failed of passage with the exception of the amendment to the Constitution providing the means whereby the City might exercise the right of condemnation of transit facilities under the so-called Hecht Bill which had passed at the 1917 session of the Legislature.





### Increased Need for High-Speed Service.

Although the need of a high-speed service was recognized years ago, the great growth in all kinds of street traffic, particularly during the last four years, has made the necessity of a speedy construction of a high-speed system absolutely imperative. This is the most prominently outstanding fact in the transit situation today.

The next most prominent fact is that the system as designed in 1913 and as authorized in 1916 is absolutely impracticable to build under present conditions and would be practically unfeasible even if built. Developments of the past year, beginning with the rejection by the Public Service Commission of the agreement heretofore reached between the City and the Company, and the submission by the Company of an absurd proposal in October, furnish most conclusive proof that the supply of unified service by the Company based on a flat 5-cent fare and the use of the full City System as now authorized would be practically impossible. Many of the reasons for this conclusion are set forth in the reports made November 14th and 21st to the Street Railways and Finance Committees of Councils upon the Company's latest proposal, to whom the Company's proposals were submitted for consideration.

### Co-Operation.

The previous reports of the department have pointed out that co-operation between the City and the Philadelphia Rapid Transit Company, which is the ideal desired by both the City and the Company, will only become possible in case concessions can be made by both parties. In thus seeking each other's co-operation they are dealing as two public service corporations and each is seeking its own advantage, without a corresponding outlay - that is, each is trying to get more for its side than it gives or would have without such co-operation.

The condition held out to the public as an inducement for the City to construct the high-speed system was the ideal one, i.e., that by so doing advantages could be secured without incurring corresponding obligations. The people were led to believe that if the high-speed system were constructed by the City out of City funds a unified system could be secured with universal free transfers, without adversely affecting either the tax rate or the carfare. Such a condition was not possible even at the time the promises were made and is absolutely impossible under present conditions. Although the Company is adhering to the schedule of fares which has been in existence for many years, the service rendered by the Company is so deplorably inadequate that additional facilities must certainly be supplied to meet not only present conditions, but to provide for the traffic anticipated for the immediate future. The Company anticipates that the traffic within the next two years will require the transportation of upwards of 3,000,000 passengers daily and to accomplish this with the surface car system now existing is not considered as physically possible. The point where facilities are most needed is in the business section, where the narrow streets and the great congestion make it impossible to operate any large number of cars in excess of those now operated. The Company's earnings show a margin above the Company's lease and other obligations far too small to warrant its assuming, under the present schedule of fares, the burden of the needed facilities. Therefore, the basis of co-operation between the





City and the Company must be entirely different from that which formed the basis of the proposed co-operation on which the City's System was authorized in 1916.

The testimony submitted to the Public Service Commission in justification of the rejected agreement between the City and the Company showed that the present schedule of fares could not possibly meet the cost of service of the entire unified system as such cost was included in that agreement, and, as that contract was rejected by the commission as not being in the public interest, there seems to be no solution open except to start on a new basis which shall be radically different from the assumptions upon which the old one was based. It seems probable that the proper basis must be:

- 1 - The valuation of the Company's existing facilities used in the service of the public as the starting point for the capitalization to be supported.
- 2 - A program of high-speed development suited to the City's financial abilities and the demands of the traffic.
- 3 - A fare fixed by the Public Service Commission adequate to support unified service on the basis of 1 and 2.
- 4 - A rental for the use of the City's System not contingent upon the Company's dividend.
- 5 - A liberal reward for good service to the end that management and labor shall thereafter work in the interest of the community and not to the exclusive interest of capital or the Company.
- 6 - A voice by the City in matters relating to service.

#### Future Outlook for Unified Transit Service.

If financial impracticability of the entire transportation enterprise in Philadelphia during the coming years is to be avoided several very disagreeable remedies must be applied to Philadelphia's existing transportation enterprise - and certain very radical modifications must be made in the City's program for adding an additional transit system with its own serious problems to the existing defective financial structure.

The service provided by the present transportation lines of Philadelphia is neither adequate nor satisfactory. This is largely the result of the tendency of the management to fight off the inevitable effect of the present era of high operating and construction costs by refusing to increase service on existing lines and by the virtual cessation of constructing extensions. The Company has not increased its service during the past five or six years to keep pace with the increase in traffic. It has been in this way that the Company has succeeded since 1916 in showing net earnings sufficient to meet its heavy capital charges.





War conditions provided an excuse for the failure to build extensions and to keep up service, but the war is now over and the time is at hand when it is imperative that the Company build the extensions that have been long promised. It is necessary also for the Company to run more cars on many of its lines which during the rush periods of the day are overcrowded.

The Company has been required to make large and frequent increases in wages during the past year and the time is undoubtedly near when, if the Company is to provide the service which the public has a right to expect, it will find it most difficult to continue to meet its present capital charges with the present fares.

It will then be necessary to either raise the fares or reduce the capital charges. The patrons of the lines will strongly object to paying higher fares while the Company is overcapitalized. The Company will endeavor to procure a raise in fares without a valuation of the property or will urge that the value of the property substantiates the fixed charges which are now paid.

The Company in its last annual report to its stockholders attempts to place the blame for its failure to provide extensions to its system upon the City, saying that the City's plans and methods of procedure have made the adequate development of the Company's system impossible. There is little if any basis, however, for this statement of the Company, as extensions are essential in locations not affected by the City's rapid transit plan. Many of the lines now needed, as surface feeder lines, will also be required after the completion of the City's rapid transit lines. The main parts of the City's plan will not be in operation for four or five years, during all of which time the public will be dependent upon the Philadelphia Rapid Transit lines for the needed transportation service. The Company cannot during this long period neglect to give adequate service simply upon the strength of the argument that perhaps upon the opening of the main City lines some of these facilities will not be required. As far as this argument applies to the extension of the Company's tracks it should be stated that the new surface extensions, which are most urgently required are all, with the exception of the Fifty-sixth Street Line, whose necessity would not in any way be diminished by the City's lines, in the outlying parts of the City and will not be competitive to the new subway and elevated lines. On the other hand, most of these required extensions will be even more essential units after the operation of the City lines than before.

The Company has not during several years past increased the number of cars operated proportionately to the increase in its revenue; the number of passengers carried per car-mile has reached the highest point during the history of the Company. The Company is therefore several years behind in its provisions of cars. Besides, which, when the new rapid transit lines are placed in operation the large surface car requirements for transfer lines will probably cut deeply into the number of cars which it has been estimated might be disposed of during the early years of high-speed operation.

As there is little prospect of a return to pre-war operating costs, the provision by the Company of adequate service will in all





likelihood bring it face to face with a financial crisis such as so many other companies have faced during the last two or three years. It will then be the Company's problem to substantially increase its revenues and will apply to the Public Service Commission for permission to increase fares.

The welfare of the citizens demands that the City be prepared to meet this move on the part of the Company with a well-defined statement of its policy. In reaching a clear determination of the City's rightful position certain questions must be answered, viz.:

1 - The City is now constructing a system of rapid transit lines to meet the demands of its citizens for a better transportation service. The revenues of these lines at the present rate of fare will fall far short of meeting the cost of providing the rapid transit service. Should the public in addition to the burdens of the costly City lines condemn itself to continue to pay that part of the Company's fixed charges which represents property which has long since disappeared or which never did exist?

2 - The operation of the complete authorized rapid transit system under present conditions and at the present fare, whether by the Philadelphia Rapid Transit Company or independently, would probably force the Company into bankruptcy. This might be true, even with a reduction in the capitalization of the Company. In view of the threatening effect of the construction of the new system upon the existence of the Company and the indefiniteness as to the method of operation which followed the rejection of the operating lease, should not the City make a definite commitment as to its rapid transit program? Is it the intention of the City to expend \$63,000,000 for rapid transit or is a system of lines costing upwards of \$120,000,000 to be constructed? It makes a vast difference to the Company, and in the terms upon which it can agree to operate the lines. Should not the City offer to the Company a contract for the operation of an amount of rapid transit construction that is definite and practicable and at the same time recognize the Company's capitalization only to the amount of its fair physical valuation?

All of the contract-leases for the City's System that have been given serious consideration have up to this time attempted to lease to the Company any number of lines which the City might build, and as might be expected under the conditions, the terms have been so framed as to relieve the Company of the risks of the business. None of the lease arrangements have been entirely satisfactory from the City's standpoint, and the Public Service Commission rejected the last contract-lease early in the year because of its attempt to assure the Company its existence against the competitive effect of any lines which the City might build. At this time it is difficult to see how a lease for the authorized lines which can be expected to meet the approval of the commission can be forced upon the Company.





3. - Should not the City demand that the entire 1907 Contract be discharged and annulled upon entering into a new contract for the operation of the high-speed lines?

In all of the several lease drafts to date the validity of the 1907 Contract has been recognized by both parties, in fact, the proposed contract-leases have all recognized the co-existence of the 1907 Contract as amended by the newer arrangement. Some of the amendments substantially modified the 1907 Contract. Some relieved the Company of the obligation of franchise payments, some removed the fare restrictions, but they all confirmed the capitalization of the underlying companies. They again confirmed the repeal of the City's old right to recapture the underlying street railway franchises. The Company would not open negotiations for a contract upon any other basis. It was in reality the provisions of the lease which undertook to again assure the payments of the underlying rentals against rate regulation that caused the commission to reject it. The confirmation of the underlying franchises with a fixed fare under the 1907 Contract was a serious blunder on the part of the City. To again guarantee the payments of the capital charges of the system irrespective of the actual value of the property and with a flexible fare arrangement would be most detrimental to the interest of the City. The approval of such an arrangement by the commission would saddle upon the public for time without end the effects of all of the unfortunate financial arrangements that have marked the history of street railway transportation of Phila. The text of the decisions rendered by the commission upon the contract-lease should make clear to the City that in again attempting to solve the contract-lease problem it must adopt an entirely different course. A beginning must be made at the bottom and not in the middle.

All the previous plans to devise a working contract were built around the Contract of 1907, making only such changes in the older contract as were required to meet the new conditions and to further protect the interests of the Company.

In subsequent negotiations if the terms of the outcoming contract are to meet the necessary approval of the Public Service Commission the 1907 Contract must virtually be disregarded. The contract must be made in fact, if not in form, not with the financial corporation and lessee of a whole pyramid of leases, the Philadelphia Rapid Transit Company, but rather with owners or agents of a certain amount of property serving the transportation needs of the City.

It is made clear in the opinions of the Commissioners that the rate-making power of the State recognizes not the various private companies, but the used and useful property which the companies represent.

A contract-lease made merely with the holding or operating company and continuing financial commitments to its subsidiaries, as its primary obligations and making the rental for the City lines contingent upon the Company's ability to meet its other obligations, such a contract cannot hope to meet with the commission's approval.

It would, moreover, make the entire transportation enterprise impracticable, for present operating conditions and those which can be





expected in the future demand rock-bottom capitalization. The time is past when cities can afford to be "liberal" with traction interests in matters of capitalization.

### Conclusion and Recommendations.

Before placing any contracts or beginning construction upon new rapid transit lines the new City administration should:

First - Adopt a definite policy as to the basis and extent upon which the City is willing to ally itself with the Philadelphia Rapid Transit Company in the joint supply of transit facilities and service in Philadelphia.

Second - Arrange for such modification of the City's System as now authorized as will carry out that policy and along lines indicated in this report.

The completion of all outstanding subway contracts and the lack of any operating agreement between the City and the Philadelphia Rapid Transit Company leaves the matter of transit development in such shape that the City can readjust its program now more readily than at any other time since work was started in 1915, and the City should take advantage of this condition as a similar condition may not occur again.

I recommend that the City take the necessary steps to procure the right in the new State Constitution to assess property benefited by the construction by the City of rapid transit lines and other large public improvements. I cannot urge too strongly the importance of this matter, which is in line with modern ideas of city development that the city should share in the profits resulting from the development of the city. This matter is covered more fully in another section of this report.

I herewith repeat certain recommendations made in the 1917 report:

"For the reasons as set forth in this report, I recommend that City Councils modify the provisions of the ordinance of July 5, 1870, so that the proportional size of the surety bonds to be furnished by contractors shall be a graduated and not a fixed percentage of the amount involved in the execution of a contract as at present.

"The present requirement that a bond shall equal fifty (50) per cent. of the limit of the contract may well be continued in force as applicable to small contracts, and the percentage be gradually reduced as the amount involved in the contract increases.

"In order that the City may carry out its plans for transit development with advantage to itself, it is important that legislation be enacted giving the City the power of excess condemnation of real estate and the right to resell property condemned for construction purposes or for entrances or right-of-way, subject to such easement as the City may desire to retain. I recommend that this phase of the City's undertaking be investigated and proper enabling legislation be prepared and submitted to the next session of the Legislature.





"In order that the City may be enabled to carry to completion this work upon which it has embarked, laws and ordinances now existing, which limit the department and the City to definite contract forms and procedure should be so amended as to permit work to be done\* \* when deemed to be to the City's advantage by direct employment of labor under the direction of the department or by some forms of percentage contract.

"Finally, I recommend that, as applied to draftsmen and technical employees of the engineering force the Civil Service restrictions as to Philadelphia residence be waived, in order that a wider field may be opened from which such talent may be obtained. Great difficulty was experienced during the year in obtaining qualified men, and unless the entire country can be drawn upon the prospects for next year are not encouraging."

I further repeat the recommendation made in the 1917 report that Councils amend the loan and appropriation ordinances for transit construction of 1916 and provide for the payment out of current revenue of all interest and sinking fund charges upon the 50-year loans issued for transit development during the period of construction and first year of operation. Should Councils be unwilling to pay the entire carrying charges during construction out of current revenue, I recommend that the ordinances be amended so as to provide that a limit of 10 per cent. of the loan shall be reserved for the interest payments and that the sinking fund payments and all interest payments in excess of the 10 per cent. be made out of current funds; and I further recommend that the carrying charges upon the cost of subway work beneath the City Hall, which will be completed at the end of this year, together with the charges upon the cost of the delivery loop contracts which were cancelled under the agreement of July 11, 1918, be paid out of current funds, as these projects cannot be used for an indefinite time and the capitalization of the interest charges thereon will only serve to increase the cost of the work.

On account of the importance of securing service on the Frankford Elevated Line as soon as possible, I recommend that the incoming administration arrange as soon as possible for the authorization and sale of a bond issue of say \$4,000,000, such to be applied primarily to the purchase of cars and equipment for this line to Bridge Street, and any surplus remaining to be made applicable to any of the general uses of the department in connection with the development of the adopted plan. Inasmuch as the equipment contemplated to be purchased out of this money is of a more or less perishable nature and subject to more rapid deterioration than the subway and elevated structures heretofore contemplated, I recommend that these bonds be issued for a term not exceeding 30 years, and as the period of construction will be short, I recommend that the interest and sinking fund charges be not capitalized during the construction period.

On account of the urgency of the situation this matter should be taken up promptly by the new administration in order that no unnecessary delay may occur in putting this line in operation.

At the next session of the Legislature a determined effort should





be made to secure passage of an act enabling the City to hold a referendum on any transit matter which may have been approved by public vote and which due to later knowledge or developments, requires reconsideration in the public interest. The passage of such an act will do more than anything else to expedite the ultimate completion of the badly needed high-speed lines.

As this is the last report issued under this administration I take this opportunity to express my appreciation of the loyalty of my assistants and the employees of the department to the City's interests and the efficient aid they have rendered in my attempt to overcome the many difficulties of this transit problem.

I bespeak for my successor the same interest and enthusiastic support as I have received.

Respectfully submitted,

William S. Twining,  
Director.

The construction work of the department during the year 1919 was limited to closing up the four subway contracts that were continued from the previous year, building a short extension southward from Callowhill Street of the Frankford Elevated Railway structure, constructing some floor and station work on the older portion of the structure, and constructing six miles of the track of the Frankford, Bustleton and Byberry Surface Passenger Railway from the intersection of Oxford and Frankford Avenues, Frankford, to the north end of the town of Bustleton.

At the beginning of the year it was hoped that as the war had closed its disturbances and perplexities would be followed by early resumption of normal economic conditions and business activities throughout the country, but during the whole year the industrial situation continued abnormal and seriously hindered the progress of our enterprise. It kept us short-handed in the drafting room, and through strikes in various industries and scarcity of material of construction it greatly delayed the completion of contracts previously placed. Also the uncertainty of developments made bidders so timid that additional contracts could be made only at very high figures.

During the year a total of 20 contracts were placed. Two of them had to be advertised twice because at the first letting all the bids were higher than the department's estimates. Six of the contracts awarded are still uncertified by the City Controller because of the taxpayer's suit attacking the validity of the transit loan legislation, and therefore although the contracts were signed and the prescribed surety bonds executed the department could not authorize the work to proceed. Of the remaining four contracts one is for the track construction on the six miles of the Frankford Elevated Railway structure, involving \$500,000, and as the rails form a large part of the cost of the whole work an increase in steel rail prices for 1920, which is thought to be among the possibilities, may cause us to lose the advantages of the present contract.





Two other contracts, one for the station buildings at the southeast and northwest corners of Tioga Street and the other for the station buildings at the northwest and southeast corners of Huntington Street were advertised for bids to be received September 16th, but before that date, as it was realized that the contracts would be held uncertified by the Controller for an indefinite time, and as building work throughout the City was at that time tied up by a general strike of bricklayers, notices were sent to all prospective bidders who had taken out plans that the date of receiving bids was postponed. A re-advertisement will be necessary when a new date for receiving bids is decided upon.

The taxpayer's suit caused difficulties also in the matter of payments on contract estimates, both current and final, the City Controller withholding his approval of the payments. This has caused several of the contractors to claim compensating consideration in the way of extensions of time with suspension of time charge, and as the failure of the City to promptly pay the amounts due for work actually performed is altogether likely to cause financial embarrassment or loss to a contractor, a reasonable concession may have to be made for such claims.

The Frankford Elevated Railway has been in process of construction for over four years, the first contract for column foundations having been let August 16, 1915, covering the portion of the line from Callowhill and Front Streets to Unity Street in Frankford. The steel superstructure for the same portion was let October 19, 1915, and erection of steel was commenced April 1, 1916, so some of the steel work has been standing now nearly four years. By subsequent extensions at both ends the structure now reaches from a point 132 feet north of Arch Street to the south side of Dyre Street, Frankford. The southern end is as close to the contemplated connection with the Philadelphia Rapid Transit Company's line at Arch Street as it can be built without cutting into the buildings between Front Street and Water Street, and the north end was stopped at Dyre Street because of the uncertainty of requirements at Bridge Street. The uncertainty as to location of a terminal there with a loop and storage yard on the Philadelphia Rapid Transit Company's property, or else-where in connection with the contemplated extension of the elevated structure to Rhawn Street, Holmesburg, made extension beyond Dyre Street inadvisable. During this year by authority of Councils the eight properties at the south end required for the curve to connect with the existing track at Arch Street were acquired by the City under condemnation proceedings, and contracts were awarded for the removal of the buildings and the construction of the column foundations and the steel superstructure, but they are among the number held back by the City Controller. At the north end we have devised a structure that will be adapted to both station and terminal purposes at Bridge Street and to future extension for operation to Holmesburg. The foundations as far as Bridge Street were included in the contract that was awarded for the Front and Arch Streets work and the construction plans for the steel work are so far detailed that we will be able to invite bids on it in February.

It is probable that all the structural work necessary for operation from the connection with the Market Street Subway incline at Arch Street to the terminal station at Bridge Street can be constructed in the time required for the equipment of the line, after the consummation





of a lease for operating it and the determination of the character of the equipment, which should not be ordered until the user of it - the operator of the lines - has had a voice in the determination.

The track construction contract was awarded August 19, but has been held by the City Controller pending the re-enactment of the loan legislation. The contractor has special plant designed and expects to have the necessary material delivered in readiness to start work as soon as the season for such work opens and counts on being able to complete the contract in four months. This does not include the transmission system - the "third" rail, bonding system, etc., which is classed with equipment and which, if an operating contract shall be obtained soon, can be installed concurrently with the track.

The six principle double stations for the Frankford Elevated, comprising 12 buildings and their platforms, have all been placed under contract, those in Frankford at Margaret and Orthodox Streets and at Ruan and Church Streets being complete except equipment - ticket booths, railings and lighting fixtures. The buildings at the northeast and southwest corners of Allegheny Avenue, at the southeast and southwest corners of Somerset Street, at York Street, at Dauphin Street and at Girard Avenue are all partly built, and the platforms for them with their canopies are also under contract, being either in course of erection or in fabrication at the shops.

Intermediate stations at Torresdale Avenue, Tioga Street, Huntingdon Street, Berks Street and Fairmount Avenue are planned, and contracts can be placed in time to permit their construction during the coming season.

The route of the Darby line is not definitely prescribed in the loan bill for transit funds nor in the authorizing ordinance for construction, the only specification being that it shall start at or near Thirtieth and Market Streets or at or near Thirtieth and Chestnut Streets. The plans submitted to and approved by the Public Service Commission show the line on Thirtieth Street from Market Street to a point south of Walnut Street where it swings across the numerous tracks of the Pennsylvania Railroad under its elevated freight line, and then, skirting the almshouse property and Woodlands Cemetery, following the western edge of the railroad to Grays Ferry Avenue, passing over it to Woodland Avenue and over it to the county line at Cobbs Creek. There are several objections to the portion of this line between Forty-ninth Street and Market Street, one being that it does not pass the West Philadelphia station of the Pennsylvania Railroad, another is that it traverses nearly a mile and a half of sterile territory where there is not and will not be any traffic at all; another is that travel along and practically over a busy railroad will be subject to much locomotive smoke, and another is that much private property will have to be acquired for it.

When this portion of the route was selected in 1915 the conditions warranted the expectation that most of it could be built on the surface and pass under the South Street bridge, but railroad extensions and almshouse developments have changed the conditions whereby it will now be impracticable for us to come down to the surface, and while a narrow elevated structure that does not have to span a street driveway





will cost less to build than the type required on Woodland Avenue the difference will doubtless be largely offset by the property damages.

It is very desirable that the West Philadelphia station of the Pennsylvania Railroad be accessible by this high-speed line from the southwest and it can be accomplished if the Darby Elevated be constructed on Woodland Avenue from Market Street, where a station connection can be made also with the present elevated and afford convenient transfer to the west.

We are accordingly making study plans for a possible change in the route of the Darby Elevated, to temporarily branch from Market Street Elevated at Thirtieth Street to traverse Market Street to Thirty-second Street and then Woodland Avenue all the way to Cobbs Creek, with a design for later connecting independently with a Chestnut Street subway or Sansom Street elevated by means of two additional tracks on Market Street and a bridge diagonally across the Schuylkill River. An accurate survey of Woodland Avenue in the stretch involved is now being made. Throughout the rest of the line the survey has been completed and all column locations determined, and construction plans will be ready to issue whenever it shall be decided to put the work under contract.

A portion six miles long of the surface trolley line authorized in 1916 to be constructed from Frankford to Byberry was placed under contract in April and was expected to be completed by the beginning of November, but the summer and fall seasons this year were abnormal in the amount of rainy weather, which interrupted outdoor work, and the contractor also had great difficulty in securing and retaining laborers of the class required for such work, the result being that the contract will not be completed before January, 1920. The portion under construction extends from Frankford Avenue in Oxford Avenue, Castor Avenue and Bustleton Avenue to Lott Street, Bustleton. The work covered by this contract will not complete the line for operation. additional contract will have to be made for the erection of trolley poles, wires, rail bonds, signals, etc., and possibly an electric power substation, as well as rolling stock, all of which work should be deferred until operation of the line is definitely arranged for.

The policy of this administration has been to avoid, if possible, placing the City under obligation to pay land damages where the effect of the improvement is in reality an enhancement of the property values instead of a depreciation, and in pursuance of the policy construction of this trolley line beyond Bustleton has been deferred with a view of obtaining a right of way by dedication instead of by seizure.

Considerable work remains to be done before the Frankford Elevated can be placed in service, but construction is at such a stage and plans for the remainder are so far completed that all necessary construction can be completed in the time that will be required for obtaining the necessary equipment after the lease for operation is consummated. Our construction so far has conformed to clearances and general requirements of the equipment of the Market Street line, our assumption having always been that the municipal lines will be operated by the Philadelphia Rapid Transit Company. In order to provide, however, for any eventuality our Frankford Elevated is so constructed on Front Street near Arch Street





that the line can either be swerved off the street and joined to tracks of the Market Street Subway on the curve at Arch Street or it can be extended on down Front Street to run into a Chestnut Street subway or continue as an elevated across town on one of the several streets that have been considered as available. Also at the York Street curve into Kensington Avenue the structure is so designed that it will be possible to attach a spur to continue up Front Street for extension into North Philadelphia, but clearly this line can be fully of service only if it be operated in connection with the present lines of the Philadelphia Rapid Transit Company, both surface and high-speed. At any rate, the method of operation of the lines should be determined before any more construction is ordered.

Status of Contracts on December 31, 1919.

Contract 500, column foundations in Front Street, from near Arch Street to Callowhill Street, was awarded March 26, 1919, to the Brown-king Construction Company, Philadelphia, Pa., and completed August 15, 1919.

Contract 510, superstructure and equipment work in Front Street from near Arch Street to Callowhill Street, awarded to the Phoenix Bridge Company, Phoenixville, Pa., April 22, 1917, was completed December, 1919.

Contract 525, station platforms at stations Orthodox-Margaret and Ruan-Church Streets, was awarded to William Steele & Sons Co., Philadelphia, December, 1918, and completed December, 1919.

Contract 531, platforms and connecting passages of stations on Kensington Avenue at Allegheny Avenue and at Somerset Street, awarded to Francis J. Boas, Contractor, in May, 1919, 50 per cent. complete.

Contract 528, track floor, floor drains and footwalks in Front Street, Kensington Avenue and Frankford Avenue, from Callowhill Street to Dyre Street, was awarded to the Keystone State Construction Company, Philadelphia, Pa., July 1917, and was completed in August 1919.

Contract 549, cast iron fillet brackets for columns in Frankford Avenue between Church Street and Dyre Street, awarded to George B. Clopt, Philadelphia, Pa., in July, 1918 and completed in February, 1919.

Contract 530, erecting cast iron fillet brackets on single-column bents in Frankford Avenue between Church Street and Dyre Street, was awarded to M. & J. B. McHugh, in October, 1918, and completed in 1919.

Contract 533, station buildings on Frankford Avenue at Orthodox-Margaret Streets, awarded to Standard Construction company, Philadelphia, Pa., October, 1917, and was completed in June, 1919.

Contract 534, station buildings on Frankford Avenue at Ruan-Church Streets, awarded to Standard Construction Company, Philadelphia, Pa., in October, 1917, was completed in April, 1919.

Contract 534, station buildings on Kensington Avenue at Allegheny Avenue, awarded to Standard Construction Company in June, 1917, and is



about 35 per cent. complete.

Contract 565, station buildings on Kensington Street, awarded to James Connor, Philadelphia Pa., in June, 1919, is about 35 per cent. complete.

Contract 553, station buildings on Front Street at Center Streets, awarded to James Connor, Philadelphia, Pa., in June, 1919, is about 15 per cent. complete.

Contract 554, station buildings on Front Street at Center Avenue, awarded to Standard Construction Company, Philadelphia, Pa., in June, 1919, is about 10 per cent. complete.

Contract 539, plumbing in station buildings at Center Streets and Ruan-Church Streets, awarded to S. Faith Co., Inc., Philadelphia, Pa., December, 1917, was completed in June, 1919.

Contract 568, plumbing in station buildings at Kensington and Allegheny Avenues and at Somerset Street, awarded to S. Faith Co., Inc., Philadelphia, in June, 1919, is about 65 per cent. complete.

Contract 540, electrical installation in station buildings at Orthodox-Margaret Streets and Ruan-Church Streets, awarded to J. F. Buchanan & Co., Philadelphia, Pa., in December, 1917, was completed in September, 1919.

Contract 567, electrical installation in station buildings at Kensington and Allegheny Avenues and at Somerset Street, awarded to J. F. Buchanan & Co., Philadelphia, Pa., in June, 1919, is about 10 per cent. completed to date.

Contract 563, entrance closures for existing buildings at Ruan-Church Streets and Orthodox-Margaret Streets, awarded to I. K. Davis Company, Philadelphia, Pa., in July, 1919, and is about 30 per cent. complete.

Contract 701, Frankford, Bustleton and Byberry Surface Passenger Railway. This work includes street railway track in Oxford Avenue, Castor Avenue and Bustleton Avenue, from Frankford Avenue in Frankford to Lott Street in Bustleton.

This is the first contract to be let on the proposed Frankford, Bustleton and Byberry Surface Passenger Railway and extends from Frankford to Bustleton. The direction for this work is furnished by this division. The surveying and general engineering work is under the supervision of Mr. T. Nelson Spencer, assistant engineer in field, his report covers this line in detail. The contract was awarded in April, 1919, and is about 98 per cent. completed to date.

#### SUBWAY CONSTRUCTION

During the year 1919 the work of construction was continued on the following subway contracts:

- Contracts Nos. 101, 102 -- City Hall Station
- Contract No. 201 -- Arch Street Subway.
- Contract No. 203 -- Locust Street Subway.





In addition to the above main contracts, two minor contracts for pipe work required by changes in the mechanical equipment in the basement of City Hall, due to the subway work, were awarded and completed, viz.:

Contract No. 112 -- Piping for pumping plant of City Hall (awarded June 14, 1918).

Contract No. 113 -- Steam heating return system of City Hall (awarded July 9, 1918).

Subway Loop -- Arch and Locust Streets Sections -- Contracts Nos. 201 and 203.

The work of closing up these contracts, under authorization of ordinances of Councils approved June 25 and October 15, 1918, for their suspension and ultimate cancellation, was continued throughout the year and is now practically completed within the curtailed limits.

The completed construction comprises two detached sections of subway on each street, built within the limits as determined by the extent to which the excavation had advanced at the date when the agreement became effective, i. e., July 16, 1918.

From that date construction operations have been concerned with the completion of the structures within the limits thus fixed, including the final restoration of the surface conditions that had previously been disturbed. Temporary concrete bulkheads have been built at the ends of each completed section and manholes provided to give access thereto from the sidewalks.

The total length of completed subway in Arch Street is 389 feet of which 253 linear feet is station structure and 136 feet standard section.

In Locust Street 580 linear feet has been completed, comprising 170 feet of station structure and 410 feet of standard subway.

The underground structures, including gas and water mains, electric conduits and the like, that conflicted with the building of the subway roof, were either relocated or readjusted to provide the necessary clearance.

On the Arch Street section, east from Thirteenth Street, sufficient cover not being available for the maintenance of the 30-inch water main originally existing there, it was necessary to substitute two 20-inch mains therefor, which were laid following the completion of the roof in that locality, the 30-inch main, in the meanwhile, being temporarily by-passed at a lower elevation.

On Locust Street the permanent paving of the cartway has been restored, but this has not been done on Arch Street where sufficient time has not elapsed to permit the backfilling to become compacted. On Arch Street west from Tenth Street the street is paved temporarily with granite block; east from Thirteenth Street the shoulders are



planked over the backfill, as granite blocks were not available time for the temporary repaving.

At the date when the suspension of the two contracts was authorized, practically the whole of the structural steel required therefor had either been delivered or was in such an advanced stage of fabrication that its curtailment was considered inadvisable. All the steel originally contracted for was therefore fabricated, and that not needed for the work within the reduced limits was at first stored in the yard of the McClintic-Marshall Company, at Pottstown, and subsequently shipped to the yard of the Torresdale filter plant of the Bureau of Water, where it is now stored.

#### City Hall Station--Broad Street Subway--Contracts

Nos. 101 and 102.

Construction operations on these contracts during the period covered by this report were concerned principally with progress on and the completion of the following main features of the work:

- 1 - Pile foundation--Subway walls.
- 2 - Removal of earth core from within the subway structure.
- 3 - Interior construction--Platforms, galleries, mezzanine and subway floors and stairways.
- 4 - Entrance structures--Stairways and escalator wells.
- 5 - Underpinning of existing Philadelphia Rapid Transit subway at Broad and Filbert Streets.

At the end of the year 1918 the work beneath the City Hall had reached the stage where the roof and walls of the subway were in position to take the support of the building, thus permitting the removal of the earth core remaining within the structure.

The erection of the steel work designed to support the existing Philadelphia Rapid Transit Subway in Filbert Street, in connection with the undercrossing of the Broad Street Subway, was complicated by the circumstance that train service had to be maintained in the old subway. This was especially true of the steel comprised in the track-floor system, which it was impracticable to erect with the trains in operation. The transit company rendered assistance in overcoming the difficulty by diverting the cars from the tracks in question during certain hours of the day.

#### Concluding Remarks on the Underpinning of City Hall

Throughout the whole period of the construction the physical condition of the building was kept under close surveillance, visual examinations being supplemented by instrumental observations,





which were continually and systematically made for the purpose of detecting and recording the extent of any settlement movements, occurring as the work of removing the old supports and their replacement by the new construction proceeded.

Over 1,000 points were established and maintained for this purpose, being so distributed as to cover the full area affected, thereby enabling evidence of settlement to be localized, which was very desirable if indications pointed to the need of corrective constructional measures.

The ultimate average settlement over the total disturbed area of the building was a fractional part of an inch, which represents the cumulative effect of the two separate and distinct underpinning operations, which the work in connection with the transferring of the support of the building encompassed, i. e., first, the rebuilding of the foundations; second, the building of the supporting subway structure.

The design of the subway and the method of construction pursued were such that the building practically remained supported on the underlying soil throughout the execution of the various operations entering into the work.

Upon the completion of the walls and roof system of the subway the earth core, enclosed thereby, and which still supported the building, was removed, and by this operation the superimposed load was immediately and automatically transferred to the subway structure, which as a whole, up to this time, had taken but a small fraction of the weight of the building. It was therefore at this stage of the construction that the initial, and at the same time conclusive, test of the bearing capacity and rigidity of the subway structure in its entirety occurred, and it adjusted itself to the load with an average settlement, instrumentally determined, of less than one-quarter of an inch.

The ground area of the portion of the City Hall Supported by the subway structure is nearly one acre in extent, or about 28 per cent. of the entire building, and the weight thus supported is estimated at 100,000 tons.

Throughout the work of construction beneath the City Hall, extending over a period of four years, and comprising innumerable operations of an intricate and varied character, the building was safely maintained without damage, and the underpinning project thus involved, which, in magnitude as well as complexity of structural features involved, is probably the most massive and complicated of its kind ever undertaken, has been successfully accomplished.



SUMMARY OF REPORT

By W. S. Twining - November 14, 1919

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At the meeting of Councils on October 16 the Philadelphia Rapid Transit Company introduced a number of Ordinances soliciting the City's co-operation with the Company in enlarging the admittedly inadequate capacity of the transit facilities of the City. Of these various ordinances only two require consideration by the Department of City Transit, one embodying a proposal to operate the City's Frankford Elevated Railway and the other amendments to the 1907 contract between the Company and the City.

These ordinances were formulated by the Company without consultation with this Department. That such was the case is significantly manifest in the amazing terms of the proposal for operating the Frankford Line.

These ordinances are very brief and the letter accompanying them gives the impression that they are intended simply to meet an emergency which has arisen in the Transit Company's affairs. On their face they effect the relations of the City and Company chiefly in matters of finance. In reality they are of immense importance, as they involve the determination of lines and principles of public policy which will affect the welfare and development of the City for many years. In fact, the whole construction program of the City's high speed lines which has been authorized is jeopardized by them. It is therefore impossible to present a discussion of these ordinances or point out their objectionable features or offer counter suggestions without entering into a discussion of the entire transit problem of the City, in connection with which these ordinances are but details.

As has been pointed out in my previous reports, the City has never adopted any definite policy in regard to the operation of the high speed system which it decided to construct and improve in 1915. These ordinances form an opening wedge; an attempt by the Company to force the City to finance the future transit requirements of the City, in return for simply their operation and management by the Company.

Mr. Mitten submits the impending holiday congestion as his excuse for appearing before Councils at this time and urging immediate action upon these particular ordinances. He is evidently insincere in advancing such a reason, because the abolishing of the exchange tickets will affect the holiday congestion only to an inappreciable degree. Even should Councils decide to take immediate action upon the matter, the necessary re-routing which such abolition contemplates could not possibly be brought about before the holiday season. Furthermore, to suggest making such radical changes at the time of year when the congestion is greatest shows poor operating judgment, of which I cannot believe the Company would be guilty, as the confusion which would surely result from such changes would more than offset any advantage which might ultimately result.

The Exchange Ticket has survived the congestion of Holiday traffic for twenty-four years, and it has never before been considered as in any





way affecting the severity of that condition. The effect of its effect on traffic is novel, ingenious and plausible as an argument to secure the end he desires. I beg this Committee not to take this argument seriously. Like many other statements, this is in fact if true. Having been tolerated so long, the need of precipitate action is not apparent. His plea regarding the urgency of the situation is an attempt to stampede the public, which this Committee should look upon with disfavor.

#### THE COMPANY'S PROPOSALS IN BRIEF

Under the ordinance which provides for the operation of the line under contract the Company would agree to abolish all 3-cent exchange tickets and to substitute free transfers except within the central business district of the City, where neither exchanges nor free transfers would be accepted. In consideration of the relinquishment of the exchange ticket revenue the City relieves the Company of the payments which it makes under the 1907 contract, viz., payment in lieu of paving, snow removal, car licenses, etc., the tax on dividends of subsidiary companies and payments into the City Sinking Fund.

By the terms of the ordinance providing for the operation of the Frankford Elevated, the Company agrees to operate the line to Bridge street at such time as the City fully constructs and equips it and to pay a rental to the City of one dollar a year. Contingent upon the previous payment by the Company of its 5 per cent. dividend cumulative from July 1, 1920, the Company is to pay to the City such amounts as would equal the City payment from current revenues of interest and dividends on bonds charges. Any remaining revenue would be divided equally between the Company and City.

#### THIS PROPOSAL SIMILAR TO FORMER PROPOSALS FROM THE COMPANY

With the object of making co-operation between the Company and the City in Transit Development not only possible but practical, as viewed from their respective standpoints, three proposed forms of agreement have been submitted by the Company for your consideration; two others prepared by the Department and one prepared jointly by the Company and the City. These two ordinances taken together form the third proposition which the Company has submitted with the primary intent of protecting the Company's present capitalization and net earnings from being detrimentally affected by the City's participation in Transit Development. These six proposals represent over six years of discussion and argument over a few fundamental principles.

The City from the very first has been unwilling to accept or submit to any form of agreement which aimed to limit its scope of action or attempted to simply temporize with the situation. The first proposal which the Company offered on March 25, 1914, was far broader in scope than this one which is now offered nearly six years later. Had the City been willing to accept such a proposition the Frankford Elevated might have been long since in operation and the Exchange Ticket abolished.

Although the Company's earnings have steadily increased until it is now earning in gross nearly 50 per cent. more than at the time



the first proposition submitted has been progressively more distasteful to the City, as conditions then unforeseen have since developed.

#### SUMMARY OF THE PHILADELPHIA RAPID TRANSIT COMPANY'S PROPOSALS

The existing surface system of the Company has almost reached its limit of capacity. There is a greater overcrowding of cars than ever before. The Company admits the inadequacy of its present facilities and is fully cognizant of the fact that unless relief is secured this condition will become unbearable. The Philadelphia Rapid Transit Company knows that its exchange ticket revenue is of questionable stability. The Company knows that the operation of the Frankford line will afford the relief so essential to the Company's surface lines. The Public Service Commission has certified that this line is necessary to the public convenience. If the provision of added facilities of any kind will increase the Company's capital charges, the continued payment of its 5 per cent. dividend will be seriously threatened. Modern high speed transit is necessary to the Company if it is to continue to carry out the purposes for which it exists, but the Company seeks to impress upon your Committee and the public that it is agreeing to operate the Frankford Line as an accommodation and in order to relieve the City from an embarrassing position and as a further evidence of its good will to the general public. The actual reason for these proposals is that the Company sees in the City's \$11,000,000 Frankford "L" investment a chance to get something for nothing, and its purpose in presenting these proposals is to maneuver the City into a position where it will directly or indirectly subsidize the 5 per cent. dividend to the Philadelphia Rapid Transit Company's stockholders and at the same time secure the good will of the riding public by abolishing the 3-cent exchange tickets and operating a sorely needed rapid transit line. The Department has always maintained that the Company's right to continue the 3-cent exchange charge is questionable. The Company seeks to barter this hazardous source of revenue for a combination of definite returns, the effect of which will be to make the payment of the Company dividend more secure than at any time in its history.

The future of the Philadelphia Rapid Transit Company is continuously threatened because of the deplorable condition of over-capitalization which exists. This condition has existed at all time during the history of the system and results from the watering of securities and the paying out in excessive dividends those funds which should have been used to provide for amortization and the depreciation and obsolescence of the property. Although the originally over-capitalized property has been allowed to depreciate and disappear, it is still represented in the Philadelphia Rapid Transit Company's fixed charges and must be satisfied before the payment of any dividends to the Philadelphia Rapid Transit Company stockholders.

#### TRANSIT POLICY OF CITY AFFECTED BY ACTION ON THESE PROPOSALS

The passage of either of the ordinances which your Committees are considering would constitute an expression of City policy toward the Company and the rapid transit problems which would have a disastrous result because of the effect upon the City's transit policy. The question





of City policy for which the passage of these ordinances would establish a precedent are:

Shall the City adopt the policy that the car rider shall pay the full cost of his transportation; or that his direct contribution shall be set at an arbitrary and nominal amount and all excess be borne indirectly by the taxes?

Shall the City adopt a policy of a fixed five-cent fare, as was done by New York, for its high speed lines and provide for all interest charges being carried by the taxes?

Shall the City in effect subsidize the payment of a dividend to the Philadelphia Rapid Transit Company's stockholders?

Shall the City lease its first and perhaps most productive rapid transit line upon terms which would make its rental contingent upon the payment of the Company's dividend and thereby jeopardize the remainder of the project?

Shall the City give up the substantial annual income which it now receives under the 1907 contract without procuring an agreement from the Company to operate the authorized rapid transit lines and without receiving any real assurance that an increase of fare will not presently follow?

Shall the City make any arrangement for a single rapid transit line and thus weaken its chance to get a fair lease for the other lines?

Shall the City agree at this time to a piecemeal amendment of the 1907 contract or demand a reconsideration of that entire agreement?

Is the elimination of the 3-cent exchange ticket outside of the business district only, satisfactory to the City, in consideration of Mr. Mitten's statement that approximately 40 per cent. of the exchange tickets are used in the business district?

#### SUMMARY OF OBJECTIONS TO ORDINANCES

These ordinances are objectionable to the City because

- (a) They are an attempt to break the transit problem of the City into a number of fragments and deal with each fragment separately.
- (b) They do not include an offer to operate the entire authorized City transit system.
- (c) They would establish a bad precedent in giving preference to the Company in the matter of the payment of its 5 per cent. dividend and making the rental for the City's first rapid transit line contingent upon the cumulative payment of the Company's divid-



end.

- (d) They do not offer the City a "square deal." The Company is asked to sacrifice an annual income of \$800,000 and upwards and its rapid transit investment of over \$11,000,000 in order to give a small proportion of the car riders a decrease in fare of doubtful amount and of still more doubtful duration. The City's \$11,000,000 investment subsidizes the Company's net income and protects it from any possible loss from the elimination of the exchange ticket.
- (e) The Company proposes to substitute 10-cent fares for approximately 40 per cent. of its present exchange (8-cent fares) passengers, making it quite probable that the City and car rider will compensate the Company fully and securely for its questionable exchange ticket system.
- (f) The Darby line, which forms an integral part of the Frankford line, and the Thirty-fifth Ward Surface line, now partly completed, are not covered by the Company's proposal and in fact the entire authorized system of the City's high speed lines is jeopardized, except the Frankford line, which would be sacrificed.

#### RECOMMENDATION

On account of these objections supported by the arguments and evidence submitted in this report I recommend that these ordinances in their present form be reported negatively. In recommending the rejection of these ordinances I submit as a counter-proposal the outline of a plan for the solution of the entire transit problems as a unit along the only lines which now seem feasible and whereby the Frankford line may be operated on a basis which should be satisfactory to the City and fair to the Company. If the City cannot obtain the operation of the Frankford line by the Philadelphia Rapid Transit Company upon better terms than set forth in this ordinance I recommend that the City construct a proper terminal extension and operate the line as a municipal undertaking.

The Proposed Ordinance Amending the 1907 Contract, Introduced in Councils and Referred to the Joint Committees on Finance and Street Railways on October 16, 1919

#### ORDINANCE

Authorizing an amendment to the contract between the City of Philadelphia and the Philadelphia Rapid Transit Company authorized of Councils, approved July 1, 1907, and bearing the same date.

Section 1. The Select and Common Councils of the City of Philadelphia do ordain, That the City of Philadelphia, in accordance with the powers granted to or inherent in it, shall enter into a contract with the Philadelphia Rapid Transit Company, owner, lessee and operator of various surface, elevated and underground street railways in the City of Philadelphia, which is to be amendatory and supplemental to the contract





entered into between the City of Philadelphia and the Company, or the first day of July, 1907, and bearing date to the said amendatory and supplemental contract shall be in the co

Agreement entered into this the City of Philadelphia, of the one part (hereinafter call the being an amendment and supplement to the contract between the same parties bearing date July 1, 1907.

WHEREAS, The City and the Company duly entered into a contract on July 1, 1907, wherein it was provided inter alia, that the then existing rates of fare in force upon the street railway system of the Company, to wit: A base fare of five cents and an additional charge of three cents for an exchange ticket, might be changed from time to time, but only with the consent of both parties;

AND WHEREAS, Since the date of said contract the City has determined upon and begun the construction of a system of high-speed lines, to be operated preferably in conjunction with the system of the Company, but owing to delays incident upon the completion of the City's system, the increased public need for transportation imperatively requires that the maximum service possible be rendered with the Company's existing system;

AND WHEREAS, the Company, almost along among the street railway systems throughout the country, by reason of careful management and the loyal co-operation of its employees, maintained and improved its service without any increase in fare during a period of greatly increased wages and other costs of operation and maintenance;

AND WHEREAS, The abolition of the three-cent charge for an exchange ticket will be to the interest of the car riders and the general public, and will make possible greater facility and dispatch in the operation of the Company's existing system;

AND WHEREAS, the three-cent charge for an exchange ticket is producing an annual revenue of upwards of one-half million dollars, an income which the Company cannot surrender if it is to continue service at a five-cent rate of fare unless appropriate compensation be made;

AND WHEREAS, The Company is making certain payments into the City Treasury as tax on dividends of certain of its leased lines, as required in the charters of said lines, and certain other payments under the said contract of July 1, 1907, none of which payments has any relation to the furnishing of transportation, and which payments constitute a direct burden of tax upon the car rider;

NOW THEREFORE, In consideration of the mutual covenants and agreements herein contained, it is agreed between the parties hereto as follows:

1. The parties do hereby agree and assent to the abolition of the exchange ticket throughout the limits of the City of Philadelphia, and the substitution therefor, at every exchange ticket point not within the delivery district (which is defined to be that portion of the City lying between the Delaware River, Cherry Street, Locust Street and



Seventeenth Street), of a free transfer. The Company shall to institute said changes forthwith, and shall have them completed before January 1, 1920.

2. The Company is hereby relieved from making payments into the City Sinking Fund:

- (a) Tax upon all dividends of its leased lines for the year 1919, and for each subsequent year.
- (b) The payment required under paragraph tenth of said contract of July 1, 1907, to which this is an amendment and supplement, said payment being in lieu of obligations for street paving and repairs, license fees on cars and snow removal. The remission of this payment shall not revive the said obligations, but the Company shall continue to be under obligations, as is every other citizen, to replace and restore street pavement removed or damaged by any construction or repair work undertaken by it.
- (c) Payments into the Sinking Fund, as provided in paragraph ninth of said contract.

3. The company hereby renounces all right, title and interest in or to the Sinking Fund already accumulated and held under the provisions of said paragraph ninth of the contract of July 1, 1907.

4. The issuance of free transfers shall be subject to such rules and regulations as the Company, may, subject to the supervision and control of the Public Service Commission, prescribe. Nothing herein contained shall require the Company to issue a transfer on a transfer, or to issue a transfer upon which a rider could make a return journey substantially to the neighborhood of departure.

5. It is hereby understood and agreed that neither the purpose nor the intent, nor the obligation of this contract, if and when approved by the Public Service Commission of the Commonwealth of Pennsylvania, is such as to impair or in anywise affect the exercise by the said Commission of any of the powers vested in it by the Public Service Company Law approved July 26, 1913, and its amendments and supplements.

IN WITNESS WHEREOF, The parties have caused these presents to be duly sealed and delivered as of and to take effect the first day of October, 1919.

SECT. 2. The Mayor is hereby authorized and directed to execute, acknowledge and deliver the said contract on behalf of the City (which contract shall be recorded), and to fill in the blank left for the date in the above agreement.

SECT. 3. The said Sinking Fund Commission is hereby abolished, and the Commissioners shall pay the said money over unto the City Treasury forthwith for such appropriation and use as Councils may hereinafter determine.

SECT. 4. The Philadelphia Rapid Transit Company shall pay into the





City Treasury the sum of fifty (50) dollars for the publication of this ordinance.

The Proposed Lease Ordinance Introduced in Councils and Referred to the Joint Committees of Finance and Street Railways on October 16, 1919.

#### ARTICLE I

Authorizing the execution of a lease from the City of Philadelphia to the Philadelphia Rapid Transit Company of the City's high-speed line to Frankford.

SECTION 1. The Select and Common Councils of the City of Philadelphia do ordain, That the City of Philadelphia shall enter into an agreement of lease with the Philadelphia Rapid Transit Company, which shall be in the form following:

AGREEMENT OF LEASE between the City of Philadelphia (hereinafter called The City), and the Philadelphia Rapid Transit Company (hereinafter called the Company).

The Company is operating a system of street passenger railways, surface, elevated and underground, in the City of Philadelphia. The City, as a first step in the construction of a high-speed system, is building, and will shortly complete, an elevated railroad, from a connection with the system of the Company at Front and Arch Streets to Bridge Street, in Frankford. This road is hereafter referred to as the Frankford Elevated.

In consideration of a rental of one dollar per annum, paid by the Company to the City in advance, and of the further considerations and covenants hereinafter set forth, the City hereby lets the Frankford Elevated to the Company, and the Company accepts said lease on the following terms and conditions:

1. This lease shall take effect on July 1, 1920, and shall continue until terminated by the City giving six months' written notice of its election to terminate the same.

2. The City will complete the Frankford Elevated with all stations, electrical equipment, signals, sub-stations, rolling stock, and all appurtenances of every kind, except power generating plant, so that it shall be ready for operation upon current being supplied to the sub-stations. Said work shall include the connection, at or near Front and Arch Streets, with present Market Street Elevated Passenger Railway line of the Company. The City will bring said railroad, with its equipment and appurtenances, to such state of completion that it can be properly and economically operated on July 1, 1920, but in case the City shall be delayed in such completion it shall be subject to no penalty or damages on account thereof.

3. The Company will begin operation of the Frankford Elevated on July 1, 1920, or, in case of delays on the part of the City, on such later date as it is ready for operation, and will operate the same as part of its general system serving the City.



4. The Company has established a reserve fund earning sufficient to pay a 5 per cent. return upon its full-paid capital stock of \$30,000,000. In addition to the fixed fund reserved, the Company shall pay over to the City the entire earnings from the Company's system, including the Frankford Elevated, main after it shall have set aside a dividend fund of \$1,500,000 per annum, cumulative from July 1, 1920. Said payments shall begin when, under the terms of the City loans, the City is required to meet interest and sinking fund payments on the bonds issued to build the Frankford Elevated and whenever the payments hereunder shall have fully met all such liability, surplus earnings from the system shall be divided equally between the City and the Company.

5. In order to determine what amounts are due to the City hereunder, the Company shall file with the City Comptroller semi-annual statements, and these statements and the books and accounts from which they are compiled shall be subject to audit by the City Comptroller.

6. All expenditures made during the term of this lease upon the Frankford Elevated which are properly chargeable to capital account shall be made by the City. All such expenditures properly chargeable to operation shall be made by the Company.

7. In case any question shall arise at any time under this lease, the same shall be arbitrated by one representative each of the City and the Company, and the Public Service Commission, whose findings shall be subject to review by the Public Service Commission.

8. It is hereby understood and agreed that neither the purpose nor intent, nor the obligation of this contract, if and when approved by The Public Service Commission of the Commonwealth of Pennsylvania, is such as to impair or in anywise affect the exercise by said Commission of any of the powers vested in it by The Public Service Company Law approved July 20, 1913.

IN WITNESS WHEREOF, The parties have caused these presents to be duly executed and delivered this \_\_\_\_\_ day of \_\_\_\_\_, 1919.

SECT. 2. The Mayor is hereby authorized and directed to execute said agreement of lease of the Philadelphia Rapid Transit Company, and upon its acceptance, acknowledge and deliver the same on behalf of the City, and to fill in the blanks left for the date.

#### NOTE OF REFORMATION

At the close of the public hearing on November 14, 1919, a confused condition appeared to exist, which was further aggravated by the reading, immediately before adjournment, of a letter from the President of the Philadelphia Rapid Transit Company (copy of which appears herewith), in which he in effect rejected the City's Counter Proposal and briefly reiterated his position that the Company's proposals presented the only solution of the transit question immediately possible.





In order to remedy the confusion created by the Company's proposals clearly that the Company's proposals were neither acceptable to the City and the Public, the following discussion was prepared for submission to the Committees at the scheduled hearing on November 21st. However, on the afternoon of November 21st, the President of the Philadelphia Rapid Transit Company sent a letter to the Committees (copy also appears herewith) requesting that further consideration of the ordinances by the Committees be discontinued and indicating the Company's intention to present similar proposals to the new Administration for its consideration.

The cancellation of the proposed public hearing on November 21st, which resulted from the Company's action, has not made further discussion unnecessary, but rather the contrary as preparatory to the renewal of the negotiations. The City must not relax its vigilance in guarding the Public--for the Company has given evidence that it regards the Public only as the source of its revenues.

As a retiring public official, I may be permitted to urge that the criticisms and suggestions herein presented be studied constructively to the end that future dealings in franchise matters may rest on the broad foundation of righteousness--of justice to the Public, the City and the Company, rather than "liberality" to the Company with resulting injury to the Public. Whether the Public be considered as car riders or taxpayers, justice to the Community must be the foundation upon which a just franchise rests.

Nov. 28, 1919.

WILLIAM E. MITTEN.

PHILADELPHIA RAPID TRANSIT COMPANY

Executive Offices

T. E. Mitten,  
Chairman, Executive Committee

1035 Land Title Building

Philadelphia November 14, 1919.

To the Chairmen and Members  
Finance and Street Railway Committees  
of the Select and Common Councils  
of the City of Philadelphia.

Considering the urgent need for increased transit facilities in Philadelphia, it is to be regretted that the report submitted by Director Twining this afternoon fails to solve the problem.

Municipal transit plans undertaken six years ago have failed to date to produce transportation for a single passenger. Discussion of the dead past does not produce transportation for Philadelphia now.

Director Twining makes much criticism of that which has been done by the Stotesbury-Mitten Management to increase and improve transit. This Management recognizes that facilities are still inadequate, and with that



knowledge, has submitted certain definite proposals to Council. Director condemns these proposals, recommends that out further consideration, and that the present and future, be turned over to the Public Service Commission.

It is the clear duty of those charged with the responsibility for transit in Philadelphia to propose means to relieve the present situation. This the company has done, fully recognizing the necessity for approval by the Public Service Commission.

The following are vital objections to Director's findings conclusions:-

1. P. R. T. Operation. The Director's proposal for a lease running to 1957 ties the hands of the incoming city administration. P. R. T.'s proposal, revocable on six months' notice, avoids this. P. R. T. also guarantee \$600,000 rental for Frankford "L" with a 5¢ fare, even on the City Transit Department's own showing the Frankford "L" cost will be 7 1/2¢ per passenger.

2. Municipal Operation. The Director's proposal for Municipal Operation, after unnecessary expenditure on the makeshift Sanson Street terminal, sacrifices the greatest public advantage of the P. R. T. System, i.e., through operation of the Frankford "L" and Market Street lines, including free transfer with surface lines.

The Director's whole report promises nothing for the future, except continued discussion. It is exactly this policy that has resulted in no accomplishment in the past six years. The City needs for transit. The company alone offers a plan to meet this need.

(Signed) T. A. Litten  
President.

CERTIFICATE OF THE BOARD OF DIRECTORS

as of November 21, 1919

1. The present situation results from the rejection of the Public Service Commission of the only operating contract and lease of the City's System upon which the City and Company have been able to agree, and the reluctance of the Company to rewrite the agreement so as to avoid the objectionable features pointed out by the Commission.

2. The Company's Proposals now submitted are obviously to the City's disadvantage.

3. At the meeting on November 14th I submitted both Counter and Alternate Proposals which were immediately rejected by the President of the Company.

4. I submit herewith a further discussion of the situation, with a modification of the Counter Proposal of November 14th, which makes further concessions to the Company, but removes the obstacles now standing in the way of immediate operation of the Frankford line.

5. If the Company cannot accept this proposal, which contains all concessions which the City can make in justice to itself, it





should be evident that the Company is actuated by a selfish determination to promote its own interests rather than a desire to serve the public.

6. If the Company is not willing to lease the Frankford Line on the reasonable terms offered today, it must be called upon to provide its own facilities the service to which the City is entitled, and this is made imperative by the enormous and recent increase in traffic. The Company must take whatever steps may be necessary to bring this about.

7. The Company should now choose its course and that choice will affirm or refute the sincerity of its expressed purpose to serve the people by improving transit conditions.

#### SUGGESTED MODIFICATION OF THE CITY'S COUNTER PROPOSAL

The Counter Proposal offered the Company at the last meeting provided that the Company should lease the Frankford Line on the basis of a fixed and definite rental of \$600,000 per year for a fixed and definite time of thirty-eight (38) years. The law requires that the City in leasing its property must make the lease begin at a definite date and the length of the lease cannot exceed fifty (50) years.

In rejecting this proposal Mr. Mitten makes much of the fact that his proposal provides for cancellation on six months' notice. This is a matter of small consequence, and I am perfectly willing that the lease should be subject to cancellation by either party upon reasonable notice and upon terms approved by the Public Service Commission. The provision that the Contract should run until 1957 was with the idea that its date of expiration should be the same as the 1907 Contract. As the proposal required the Company to furnish all equipment beyond the initial equipment, the term of thirty-eight years was not deemed excessive to provide for the protection and amortization of the equipment capital. Although I believe that the City should reserve the right to cancel the lease upon reasonable notice, I am unalterably opposed to the City's entering into a bad contract such as the one the Company has presented simply because it provides for cancellation on six months' notice. It is easier to get into such an arrangement than to get out. At the last meeting I presented an estimate that the completed cost of the Frankford Elevated Railway would approximate \$11,150,000, and towards that cost the City has \$8,000,000 available. I stated that the excess cost of approximately \$3,150,000 above the \$8,000,000 available must be supplied by either the City or the operator; and as the authorization and appropriation of this money by the City may take considerable time and thereby delay the purchase of the initial equipment of the line and as Mr. Mitten has suggested his willingness to co-operate in financing this line, I suggest to these Committees the following modification of the proposal submitted at the last meeting:

#### Investment.

City to furnish elevated structure from connection with Market Street Subway-Elevated Line to Bridge Street, including foundations and superstructure, deck, platforms, track work, third-rail, signals, including miscellaneous construction work. City also to furnish necessary real estate, station buildings with equipment, car yard and the required engineering and capital charges which form part of the construction cost.



Company to furnish cars, rail-axe tools, and other necessary power facilities and the following: a telephone apparatus and shop tools, machinery, etc., necessary (in addition to that furnished by City) for the line.

City and Company will each furnish all additional facilities type specified above during the term of the lease.

City bonds to be expended under City supervision; under Company supervision.

#### OPERATION.

Company to operate the Frankford Elevated Railway in conjunction with the Market Street Subway-Elevated Line, as one continuous line.

#### FARE.

The fare shall be five cents for a continuous ride upon any part of the Frankford-Market Street Subway-Elevated with free surface transfer privileges on the Frankford Elevated corresponding to those in Philadelphia. Rates of fare subject to revision by Public Service Commission.

#### TERM.

The term of the lease shall be from July 1, 1920, to July 1, 1957; with provision for cancellation by City upon reasonable notice and upon fair terms.

#### RENTAL.

Company to pay City an annual rental equal to 4 per cent. of City's initial investment in Frankford Elevated. This rental to be increased by amounts equal to the actual interest charges on additional investments made by the City in the line during the term of the lease. This rental to be a direct obligation of the Company-- not contingent upon any other payment. Sinking fund payments on City bonds not to be included in rental requirements.

#### REPAIRS AND MAINTENANCE.

Company at its own expense to keep in good state of repair facilities furnished by the City. Company also to amortize out of earnings for benefit of City, investment of Company in Frankford Elevated.

#### SUPERVISION.

Lease to contain provisions giving to the City a voice in the character of service given the patrons of the Frankford Elevated.

#### OTHER CITY-BUILT LINES.

Company to agree to operate other lines mutually agreed upon, or upon terms to be settled by arbitration if such





agreement is not obtainable.

Under this plan the Company's contribution to the cost of the Frankford Elevated Road would amount to approximately the \$3,000,000 needed to complete the line according to the estimate submitted to these Committees on November 14th. It is not desirable that the City should purchase rolling stock and similar short-lived equipment out of the proceeds of fifty-year bonds. Neither is it equitable that the City should contribute 100 per cent. of the funds needed for new facilities. In order to have proper co-operation on the part of the operator he should contribute in part to the cost. The division of cost proposed is 73 per cent. City money and 27 per cent. Company money.

By this offer the Company and car rider are relieved of the sinking fund payments upon the City's \$8,000,000 bonds. I regard this counter-proposal as now modified as being neither arbitrary nor unfair to the Company.

I want to convince these Committees that the Department is willing to go as far as it can justly to reach an agreement for the operation of this line on a unified basis.

I want to repeat at this point that in preparing the agreement of 1918 the City went further in order to meet the Company's demands than I believe it was justified in going. The Company's demands at that time were so severe that the Public Service Commission held them to be not in the public interest. The City has been ready ever since the agreement was disapproved to rewrite the agreement to meet the views of the Public Service Commission and is ready to do it now. The Company, however, has lost its enthusiasm for a "Service at Cost" form of contract if drawn to conform to the Public Service Commission's views, and has reverted to its original and discredited plan. The plan which it now brings forward in a new dress is substantially the plan which for two years has lain in the discard and which the City should refuse to accept now for the same reason that it was discarded two years ago, i.e., that it is unfair to the City.

I leave it to these Committees to decide for themselves on whom the responsibility for the present condition of affairs rests.

THE PUBLIC SERVICE COMMISSION  
of the  
COMMONWEALTH OF PENNSYLVANIA

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Municipal Contract Docket No. 831-1918

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In re: Contract between the City of Philadelphia and Philadelphia  
Rapid Transit Company

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The contracting question, entered into in pursuance of the Act of June 17, 1913, P. L. 520, must be approved by the Public Service Commission



under the Act of July 26, 1913, P. L. 1374, and such approval shall be given "only if and when the said Commission shall find or determine that the granting or approval of such application is necessary or proper for the service, accommodation, convenience or safety of the public."

Frequent hearings were held and much evidence heard by the Commission which found that approval of the contract was not necessary or proper for the service, accommodation, convenience or safety of the public; accordingly approval of contract was refused.

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Appearances:

William Draper Lewis, Special Counsel,  
Representing the City of Philadelphia.

Ellis Ames Ballard,  
Representing the Philadelphia Rapid Transit Company.

C. Oscar Beasley,  
Edward B. Martin,  
Edward M. O'Brien,  
Representing the North Philadelphia Business Men's  
Association, United Business Men's Association, Over-  
brook Association, West End Business Men's Association  
and Cliveden Improvement Association and others.

Thomas Raeburn White,  
Representing Mr. A. Merritt Taylor.





GLS-88

1920.

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Report of City Transit  
September 1920.

The record of the year 1920 shows that a practicable plan of action designed to remedy the inadequate transit service of the City is still far from being realized. The unfortunate conditions controlling transit service that have existed in greater or less degree for many a year and plagued preceeding administrations in their efforts to secure satisfactory service for Philadelphia persisted throughout the year and even became worse as time advanced.

Transit service must continue to grow progressively worse until the reasons for its decline are recognized and proper remedies applied. Unless, and until the conditions underlying transit stagnation shall be eliminated, the transit service of Philadelphia must continue to be a source of public irritation, with every indication that the public may presently voice its irritation through a demand for constructive action and relief, even though that relief shall not take the form of an ideal and permanent solution of the problem.

With each passing year the struggle for the control of transit service between the community and the corporations grows more serious, and on its outcome hangs much of the future welfare of Philadelphia, for transit service has become an essential element of civic life, and the housing problem and others equally vital to the health, comfort and happiness of the community served, hang upon that service.

Control over transit service being outside the functions assigned to this department, it will be sufficient to point out in this report that Philadelphia suffers at the hands of a corporation chartered by the State to perform as a public servant, partly because the responsibility for supervising the service of transit corporations has never been laid upon any department of the City Government, and partly because the present unsatisfactory transit service calls for a form of treatment which the public is reluctant to adopt. In the last analysis, transit conditions depend upon public opinion, and the attitude of the public toward transit corporations is substantially uniform the country over, from Maine to California.

PROGRESS ON THE CITY'S SYSTEM

Although the City had initiated Subway construction in the latter part of 1915, yet as a result of the war and in accordance with an ordinance of Councils all subway work was abandoned as of July 16, 1918, and at the beginning of 1920 there was no work upon the City's authorized system in progress excepting in connection with the Frankford Elevated Line, the structural features of which were approximately 80 per cent. completed.

On January 20th the new City Council, by resolution, requested the director to report upon the status of the Frankford Elevated Line, and on March 30th a report of 58 pages was rendered setting forth:



- (a) The City's unsatisfactory position in relation to transit service and the causes therefor;
- (b) A general review of the laws under which the City's work is proceeding;
- (c) The status of work upon the City's authorized system of new lines;
- (d) The status of the equipment needed to operate the City's high-speed lines;
- (e) The financial status of the Frankford Line;
- (f) The operating results estimated for the Frankford Line under different assumptions as to operation;
- (g) Conclusions and recommendations.

That report recommended the operation of the line as a part of the system of the Philadelphia Rapid Transit Company, and suggested a tentative form of operating agreement under which the City should furnish the permanent structure, track work, third rails, signals, station buildings, car storage yard, together with the necessary real estate; and the Company should furnish the cars, electric sub-stations, cables and conduits for the transmission of the electric power, and such real estate as might be necessary therefor, telephone and other apparatus for communication, shop tools and machinery and such minor equipment as was not otherwise provided for.

The discussion of that report brought out the fact that the company was only ready to undertake the operation of the line upon one condition--that the City should supply not only the structural features, but substantially all the initial equipment for the line, complete and ready for operation.

On April 26th, at the meeting in the Mayor's office between officials of the City and company, a tentative plan of procedure was adopted, in order that the completion of the line might be expedited and meet the Mayor's wish that work by the City might progress without interruption pending the settlement of the terms of a contract for the operation of the line by the company. A brief summary of that tentative plan of procedure may be set out as follows:

- 1--That the City should furnish all funds necessary for the construction, improvement and initial equipment of the line, ready for operation.
- 2--That electric power for the operation of the line should be generated at the plants of either the company or the Philadelphia Electric Company.
- 3--That two electric substations of the Company should be utilized in the operation of the line and that one new





substation should be constructed by the City.

- 4--That of the two existing substations to be utilized in the operation of the line, the Letterly Street substation should be enlarged by the Company, while the Arrot Street substation, with its adjoining land and building, should be sold by the company to the City in its present state and enlarged by the City sufficiently to meet the requirements of the Frankford and Byberry lines.
- 5--All conduits and cables forming the power distribution system from each substation were to be owned and paid for by the prty owning respective substation.
- 6--Shops now owned by the company at Sixty-ninth Street were to be enlarged sufficiently to care for the cars of the Frankford line, such enlargements to be paid for by the company.
- 7--The initial equipment of cars for the Frankford line to be furnished by the City to the company was to be one hundred (100).

The money needed to enable the company to carry out its part of the program was to be derived from the sale by the company to the City of the following properties:

- (a) The site for the new substation to be built by the City on Front Street below Fairmount Avenue.
- (b) A portion of the site proposed to be taken by the city for the car storage yard and trainmen's buildings at Bridge Street.
- (c) The substation and contiguous property controlled by the company and belonging to it and its subsidiaries at Frankford Avenue and Arrott Street.

The price to be paid for these properties was to be settled by condemnation proceedings or by agreement after a joint appraisal or arbitration, and all money derived from the sale of these properties was to be applied by the company toward the equipment of the Frankford line and the necessary alteration of the Market Street line to accommodate the Frankford cars.

As the City fully expected the company eventually to become the operator of the Frankford line, it was conceded by the City that it would be desirable to have all equipment which the City planned to purchase conform as closely as possible to the standards adopted by the company. In order to secure that result and to expedite the purchase of the equipment, it was arranged that the company should furnish the City with such plans and specifications as were necessary to secure competitive bids. The company expected at that time to be an active bidder as a contractor



for the work, and undertook to supply the necessary plans and specifications by June 15th. That date was based on the company's assumption that the entire equipment of the line, amounting to upwards of \$5,000,000, would be awarded by the City under one general and comprehensive contract with very broad specifications, and not broken up into fifty or more sectional contracts with separate bids covering each item of the equipment. Upon later learning of the department's decision that one general and comprehensive contract was not feasible and that bids must be taken upon individual items of the equipment, the company decided it could not bid for the large amount of work involved, but continued the preparation of the plans and delivered them to the City from time to time as completed. The end of the year, however, found a very considerable portion of those plans still undelivered.

In accordance with the tentative agreement with the Company, the City has proceeded to condemn the ten (10) acres of land lying north of Bridge Street and west of Bustleton Avenue to be used as a yard for the storage of cars. About one-half of this property was owned by the Philadelphia Rapid Transit Company.

During the year bids were requested on twenty-nine (29) contracts; twenty-four (24) contracts totalling in excess of \$2,000,000 were awarded. The details of these contracts will be found in the reports of the engineers attached herewith.

#### SUMMARY OF EXPENDITURES

Description	EXPENDITURES	
	During year 1920	Total May 27, 1912, to Dec. 31, 1920
Loan Funds		
Construction--thirty-year loans.....	\$10 977	\$4 669 362
Construction--fifty-year loan.....	1 097 234	5 223 048
Construction (equipment)--twenty-year loan.....	111 788	111 788
Acquisition of real estate--fifty-year loan.....	149 992	441 019
Engineering and miscellaneous.....	172 981	1 219 350
Interest and sinking fund on fifty-year loan.....	204 674	805 814
Total loan funds.....	\$1 747 646	\$12 470 381





General Funds	:	:	:
Engineering, rent and miscellaneous....	\$63 601	:	\$91 708
Valuation of P. R. T. Co's property....	27 022	:	27 022
	:	:	:
Totals--all funds.....	\$1 838 269	:	\$13 439 111

## STATUS OF AN OPERATING CONTRACT FOR THE CITY'S SYSTEM

Preliminary negotiations looking to the operation of the City's System when and as completed by the Philadelphia Rapid Transit Company, have been conducted during the year directly between the Mayor and the President of the Philadelphia Rapid Transit Company. A tentative agreement as to the amount of rental to be paid the City for the use of the Frankford Lien was reached on June 28th. In effect the President of the Company agreed to recommend through a sub-committee of his board to his Board of Directors, and through them to the Company's stockholders, that the Philadelphia Rapid Transit Company should enter into a lease with the City of Philadelphia for a term of years to be agreed upon, to operate the Frankford "L" as a part of its street railway system, paying annually to the City of Philadelphia as rental a sum equivalent to five per cent. upon the entire investment of the City therein.

This agreement contained the proviso that the City should take the rental requirement into consideration in its future attitude toward the question of revenue to be received by the Company for the service rendered to the riders on the joint system. About a month earlier (May 30th), the Company had filed with the Public Service Commission a petition for an increase of fare and following that action a resolution had been adopted by Council directing the Mayor and the City Solicitor to intervene in behalf of the City in petitions before the Public Service Commission for a reduction in the rentals paid the underlying companies by the Philadelphia Rapid Transit Company. In accordance with that resolution, the City entered a protest against the granting of the increased fare requested by the Philadelphia Rapid Transit Company, which was to have gone into effect on July 1st. On June 29th, however, the Public Service Commission requested the Company to withhold the proposed increase. This action by the City in opposing the Company's attempt to secure a higher rate of fare has undoubtedly acted to prevent the completion of negotiations for an operating contract for the Frankford "L". The situation has further been complicated by the ordering by the Commission of the valuation of the Company's property to be used as a basis for the determination of a reasonable fare.

## VALUATION OF THE PROPERTY OF THE PHILADELPHIA RAPID TRANSIT COMPANY

As a result of a protest against the increase in fare which the Company proposed to put into effect, the Commission de-



rected a valuation of the Company's property, and on July 7th an ordinance was introduced in Council appropriating \$50,000 toward the City's share of the cost of the valuation proceedings. That ordinance was approved by the Mayor on August 6th and on October 4, 1920, Mr. Robert M. Feustel, an engineer of large experience in valuation proceedings, was engaged to take charge of the technical side of the City's case before the Commission. A portion of the forces of the department have been working in conjunction with the experts supplied by Mr. Feustel, and it is expected that a preliminary valuation will be completed early in April of 1921.

#### TEMPORARY INCREASE OF STREET CAR FARES

On October 18, 1920, the Public Service Commission issued an order that a temporary increase in fair might be collected by the Philadelphia Rapid Transit Company for a period of six months, beginning November 1, 1920, and ending April 30, 1921. The new schedule provides a base fare of 7 cents, or a commutation rate of 4 tickets for 25 cents. Free transfers and exchange points to remain as formerly, and exchanges to be sold at 3 cents as formerly.

#### JOINT ENGINEERS' CONFERENCE

On October 18, 1920, the Public Service Commission issued an order as follows:

"The Bureau of Engineering of the Public Service Commission by direction of its chief engineer, shall, in association with the engineers of the Philadelphia Rapid Transit Company and the engineers of the City of Philadelphia, make a thorough investigation looking to the improvement of the service rendered by the Company, Necessary extensions to the system and needed additional equipment to enable the Company to give better service to the car-riding public, and shall promptly submit to the Commission recommendations for the elimination of such skip-stops as are unduly burdensome and dangerous to the public."

In compliance with that order a meeting was subsequently called in the office of Commissioner Clement to discuss ways and means for carrying out the purposes expressed in that order, and the following was adopted as the scope for the work of the engineers' conference:

First--To determine measures of immediate service relief to meet the approaching heavy winter and holiday traffic.

Second--To determine necessary measures of service improvement and extensions that may be reasonably undertaken by the Company after the close of the holiday traffic season.

Third--To determine a comprehensive plan of service, extensions and improvements embracing co-ordination with the City's high-speed lines, under which the transit system may be operated with the highest degree of efficiency and public service after the completion of the pending valuation and the fixing of a fair rate of return.





Following a conference with the Mayor the following letter was sent to the Commission:

Philadelphia, November 24, 1920.

Dr. F. Herbert Snow, Chief,  
Bureau of Engineering,  
Public Service Commission of the  
Commonwealth of Pennsylvania.

My dear Dr. Snow--

The Mayor has referred to me a copy of the letter of Commissioners Clement and Benn, written him under date of November 20th, and requesting that the City, without delay, designate some engineer to act as its representative on the Engineers' Conference arranged for some weeks ago in the Mayor's Office.

As you are aware, City Council has been asked to authorize an appropriation of \$20,000, to permit the employment of an expert traffic engineer to represent the City in this conference, but pending such action the Mayor has arranged that I shall act temporarily as the City's formal representative in order that the work of the conference may proceed without delay.

It has been arranged with Mayor Moore that pending Council's action and further development of the conference, I shall assign Mr. J. R. Conroy of this department, who is the expert in traffic investigation, to the duty of preparing the details of the City's suggested plans for improvement of the service.

I assume that the City and the Company will each provide whatever number of assistants may be needed to properly work out, under your direction, such suggestions as the conference may deem worthy of full investigation and in the meantime, will await notice from you as to the place and date of the first meeting of the conference.

Very truly yours,

(Signed) WM. S. TWINING,  
Director.

On Friday, November 26th, the first meeting was called in the office of the director, and a tentative program was gone over. Pending the adoption and approval of this program by the Mayor, the Public Service Commission and the Company, and the appropriation of sufficient funds by the City to carry on its portion of the work, the further carrying out of the program has been held in abeyance.

#### LEGISLATION

As a necessary step precedent to the solution of the existing transit situation, the Department believes that a number of enabling laws should be passed and that the City's charter should



be amended insofar as to affects the Department of City Transit, in order to enable the Department to carry out certain functions which are necessary for the protection of the public but which are assigned to no City official under the present charter.

Previous reports have contained many suggestions and recommendations as to the desirable legislation, and I recommend that active steps be taken to secure the passage of whatever legislation may be held necessary in solving the City's transit difficulties.





STATEMENT No. 1--SUMMARY AND APPORTIONMENT OF LOANS

	Date when loan was				
	Authorized by				
	Ordinance of	Appropriated to			
	Councils	Dep't of	Interest Term		
Voted by people	(Approved)	City Transit	Rate	(years	
November 3, 1914	Jan. 25, 1915	Jan. 25, 1915	4 1/2	30	
April 29, 1915	June 30, 1915	July 2, 1915	4 1/2	30	
			4-1/2	30	
May 16, 1916	( June 29, 1916	July 20, 1916	4 1/2	50	
	( Dec. 30, 1919	Dec. 30, 1919	5 1/2	50	
Councilmanic Loan	June 4, 1920	June 29, 1920	5 1/2	20	
November 2, 1920	Oct. 1, 1920			30	

Totals.....

SPECIFIC ALLOTMENT OF LOAN FUNDS\*\*AS VOTED BY PEOPLE

Reconstruction and relocation of sewers in central portion of the City....  
Toward the construction of a subway railway in Broad Street with branches,  
and the construction of an elevated railway from Front and Arch Streets  
to Rhawn Street  
Toward the construction and improvement of subways, tunnels, railways,  
elevated railways and other transit facilities--including interest  
during construction period and one year thereafter--\$57,100,000 to  
be used, applied and expended as follows:  
Broad Street Subway and branches.....  
Frankford Elevated Railway.....  
Thirty-fifth Ward--Bustleton and Byberry Surface Railway.....  
Darby Elevated Railway.....  
Parkway-Roxborough Subway-Elevated Railway.....  
Subway Delivery Loop.....  
Chestnut Street Subway.....  
Real estate and easements.....  
Toward the payment for the purchase and installation of the equipment and  
toward the construction and improvement of an elevated railway from Front  
and Arch Streets to Rhawn Street.....  
Toward completion and equipment of the Frankford Elevated Railway from  
Front and Arch Streets to Rhawn Street.....  
Toward the construction of connection of Market Street subway and Frankford  
Elevated Railway.....

Total .....

1 Unissued portion (\$53,100,000) of this loan cancelled by new City Charter  
2 15% of this amount (\$600,000) reserved for interest and sinking fund charge  
3 No allocation made by City Controller of this bond issue to the Department  
Note:--See page 200, 1917 Report for a chronological history of construction



AUTHORIZED FOR TRANSIT DEVELOPMENT TO DECEMBER 31, 1920

Amount of Loan						Issued to
Item 160	Item 180	Item 210	Item 240	Item 260	Item 261	December 31, 1920
\$500 000						\$500 000
	\$3 000 000					3 000 000
	3 000 000					3 000 000
		\$57 100 000				4 000 000
		53 100 000				34 165 000
			\$4 000 000			4 000 000
				\$3 500 000	\$100 000	
\$500 000	\$6 000 000	\$57 100 000	\$4 000 000	\$3 500 000	\$100 000	18 665 000
						Apportionment of bonds sold to December 31, 1920
\$500 000						\$500 000
	\$6 000 000					6 000 000
		\$25 000 000				
		4 400 000				
		1 200 000				
		4 200 000				( 24 000 000
		7 500 000				( 34 165 000
		7 600 000				
		5 000 000				
		2 200 000				
			\$4 000 000			4 000 000
				\$3 500 000		
					\$100 000	
\$500 000	\$6 000 000	\$57 100 000	\$4 000 000	\$3 500 000	\$100 000	18 665 000

and reauthorized by City Councils December 30, 1919.

of City Transit and Department of Wharves, Docks and Ferries.  
appropriations to the Department of City Transit.





STATEMENT No. 2--STATUS OF TRANSIT LOAN FUNDS AS OF DEC. 31, 1920

Loan Item No.	Amount of loan authorized	Amount to December 31, 1920		
		Issued	Payments	Unexpended
160	\$500 000	\$500 000	\$477 484 20	\$22 515 72
180	6 000 000	6 000 000	5 285 540 40	714 659 60
210	157 100 000	4 000 000	6 595 057 44	1 569 942 56
210	153 100 000	4 165 000		
240	4 000 000	4 000 000	112 299 44	3 887 700 56
260	3 500 000			
261	100 000			
Totals	\$71 200 000	\$18 665 000	\$12 470 381 56	\$6 194 618 44

Reserved by Controller to meet interest and sinking fund  
payments of loans (No. 210), 15% of issue (\$53,100,000)  
\$600 000 00  
Expended to December 31, 1920..... \$605 814 48

Overdraft on consolidated loan fund.....\$205 814 48

Loan funds applicable to liabilities outstanding on account  
of contracts and real estate condemnations..... \$6 194 618 44

1 Unissued portion (\$53,100,000) of this loan cancelled by new City  
Charter and reauthorized by City Councils December 31, 1919.

STATEMENT No. 3--EXPENDITURES FROM TRANSIT LOAN FUNDS BY YEARS

Loan Item No.	1915	1916	1917	1918	1919	1920
160	\$333 136	178 261	\$51 674	\$13 810		
180	113 436	1 915 469	1 844 872	790 554	\$470175	\$151034
210		16 247	580 403	2374 177	2139918	1484313
240						112299
Totals	\$446 572	\$2 010 580	\$2 476 949	\$3178 541	\$2610093	\$1747646



STATEMENT No. 4--PAYMENTS AND LIABILITIES OUTSTANDING AGAINST  
TRANSIT LOANS AS OF DECEMBER 31, 1920

Loan Item No.	Amount of funds authorized	Bonds sold			Total Payment from loan funds	Total payments and contract liabilities
		Amount	Date	Rate of interest		
160	\$500000	\$500000	1- 1-1916	4%	\$477484 28	\$477484 28
		(3000000)	7- 1-1916	4%	0	
180	6000000	--(2000000)	11-1-1918	4-1/2%	-5285540 41	5385495 31
		(1000000)	3-1-1919	4-1/2%		
		(1500000)	11-1-1916	4%		
210	-257100000	-1(2500000)	1-1-1917	4%	-6595057 44	7959725 49
	(53100000)	(4165000)	12-16-1920	5%		
240	4000000	4000000	7-19-1920	5%	112299 44	260511 52
260	3500000					
261	100000					
Totals	\$71200000	\$18665000	.....	.....	\$12470381 57	\$14083217 20
Total payments from loan funds.....						\$12470381 57
Outstanding contract liabilities as of December 31, 1920						1612835 63

1 No allocation made by Controller of this bond issue to Department of City Transit and Department of Wharves, Docks and Ferries.

2 Unissued portion (\$53,100,000) of this loan cancelled by new City Charter and reauthorized by City Councils December 31, 1919.





## REPORT OF THE CHIEF ENGINEER

The activities of the Department in construction work and planning embraced the prosecution of construction on several of the contracts carried over from the previous year; the placing of a number of additional contracts; the survey of streets for possible future extensions of lines; and the making of studies of advantageous modifications of the original route and construction plans. Also in the latter part of the year work was commenced on the design of cars, etc., in pursuance of the decision that the City should completely equip the Frankford Elevated Line, in the effort to have the line ready for operation by the Fall of 1921, whether a contract of operation be secured meanwhile or not.

Of the nine contracts carried over unfinished from the previous year all were completed during 1920 except two--the Somerset station buildings and the York-Dauphin station buildings. The Contractor--the same in both cases--was caught in the abnormal industrial conditions of the latter part of 1919 and the early part of 1920 in a way that caused his inability to get certain subcontract work--such as steel stairway and railings and steel sash--at the time it was needed, with the consequence that these four buildings are not yet quite completed. The tracks of the surface line from Frankford on Oxford Avenue, Castor Avenue and Bustleton Avenue were finished in January to the upper end of Bustleton, including the steel viaduct over the valley of Penny-pack Creek, making six miles of line. The remaining four miles are not contemplated to be built until the right of way over private property is dedicated by its owners. There were 29 contracts placed in 1920--3 in connection with the subway, 23 for construction of the Frankford Elevated, and 3 for equipment of it. The subway contracts were for restoring a portion of the steam heating plant of City Hall and a portion of the electric lighting system in the basement; the installation of a permanent automatic electric pumping plant in the section of subway under City Hall; and the repaving of a portion of Arch Street over the subway. The Frankford Elevated construction contracts placed during the year were for extensions of the steel structure at the north and south ends, with the necessary foundations and concrete deck; the demolition of buildings north of Arch Street that were in the way of the connection to the Market Street line; a number of station buildings with the station platforms; the laying of track on the deck; and the grading of the yard at Bridge Street for terminal purposes.

Bidders were scarce and prices very high in the early part of the year, and several contracts had to be readvertised before they could be placed. In the latter part of the year conditions approached more nearly to normal, and bidders were more plentiful, while prices became more reasonable.

Considerable delay was caused toward the close of 1919 and at the beginning of the year 1920 by the Taxpayers' suit which was initiated in August, 1919, to restrain the issuing of bonds, current payment on going contracts being held up, and the placing of new contracts being prevented, until the new loan legislation was enacted by Councils which was not until December 30, 1919. Two contracts that had been awarded in 1919 but because of this delay could not be advanced to execution, were declined by the





contractors under the option given all bidders where the execution of the agreement is delayed by the City as much as two months from the opening of bids. One of these, which had been awarded to Brown-King Construction Company, was for the demolition of the eight buildings on Front Street above Arch with the construction of the column foundations there and the construction also of column foundations in Frankford for the extension to Bridge Street. The other, which had been awarded to McClintic-Marshall Co., was for the steel superstructure at the same two points. In both cases the work was readvertised later and relet at prices much higher than the original bids, the demolition and foundation work to the same Contractor at an advance of about 30 per cent.--\$7,500--and the steel work to the Phoenix Bridge Co. at an advance of about the same percentage and nearly the same amount, over the prices when awarded in 1919.

A third contract that was greatly delayed by the same proceedings--though it was not declined--was that for the track from Callowhill Street to Dyre Street, awarded to The Snare & Triest Co. in August, 1919. Through the postponement until after the beginning of 1920 of the authority to proceed with the work it became impossible for the Contractor to get the steel rails until August, 1920--one year after the original award of the contract. This was because the rail mills closed down at the beginning of the year and when they resumed they were required by the U. S. Government to roll first a large tonnage of rails to meet the Government's obligations to the railroads. This delay then involved the Contractors in considerable increased transportation expense through the 40 per cent. advance in railroad freight rates that was made in 1920, as authorized by the Government, which applied to about 16,000 tons of track ballast. It involved them also in a large increase in labor cost through the rise in wages of laborers.

Progress on other contracts has generally been slow, and was especially so in the early part of the year. Contractors everywhere complained of the greatly lessened efficiency of their workmen, notwithstanding increases in wages, and also of the difficulty of getting fabricated material, shops generally being full of orders. In the latter part of the year there was a very noticeable difference, building operations throughout the City slackened, shops ran out of orders, labor--both common and skilled--had to seek employment, and our contractors then made better showing.

The indications now are that all of our contracts for construction will be completed during the summer of 1921.

All the stations on the Frankford Elevated originally contemplated are either completed or well along to completion, with the exception of the one at Fairmount Avenue, which has not been placed under contract but will be early in the coming season, so that it can be completed by fall. The original plans of the line did not contemplate a station at Huntingdon Street, that district being expected to be served by York Street and Somerset Street stations, but in 1917 property was acquired there by the City and alterations were made to the steel work in preparation for the installation of a station at that point. Construction plans have been made for the two station buildings and for the plat-





forms, but the work has been held in abeyance pending the development of a project for a branch line which would have a station at Lehigh Avenue nearby.

Work on the unfinished station buildings and platforms has at this time been generally suspended for the winter, except in the case of steel work, the severe cold making such work as masonry and finishing very difficult to get satisfactorily done as to either workmanship or quality. They can all be easily finished during the coming season.

The two tracks on the structure with all the crossovers have been laid all the way from Frankford to Vine Street. The concrete portion will be completed in a few days as far as it can proceed until the structure and its concrete deck from Dyre Street to Bridge Street are erected, which will not be before May of 1921.

The column foundations have been completed for the extensions to Arch Street at the south end, and to Bridge Street at the north end, and they are ready for the erection of the steel which will be erected during the winter and be ready for concreting the deck by the time the weather will be safe for it to be done.

The curved structure at the intersection of Bridge Street and Bustleton Avenue to connect the main line on Frankford Avenue with the car storage yard and inspection shop north of Bridge Street, will be ready for erection of the steel to begin April 1, and the concrete deck on it will be placed under contract in time for it to be done as soon as the steel is in place.

The grading of the Bridge Street yard together with the construction of retaining walls and the abutment for the terminus of the elevated structure were awarded to Thomas Connor in November, and work was commenced so promptly and is being prosecuted so energetically that it promises to be completed considerably in advance of the date prescribed, which is May 31.

All the necessary contracts for the completion of the structure of the elevated have been placed with the exception of the concrete deck on the portion connecting the main line on Frankford Avenue with the terminal yard. This work will not take long, and as it will not be permitted to be done before all danger of freezing is past, and as also it cannot be done until the steel structure is erected, there is ample time to get bids and place the contract.

All the track on the elevated structure is under contract except the connection from Frankford Avenue to the yard, and this with the tracks in the yard will be let early in the year so that it will be in place by the time the cars begin to be delivered.

The material of the "third" or conductor rail has been purchased and delivered to a storage yard. Its erection will be included in the contract for the electrical bonding of the track rails and the steel structures.



The following contracts have yet to be placed to complete the equipment of the line for operation--about 36 different contracts:

Concrete deck and footways to yard.

Track on connection to yard, in yard, and connection from yard to Bridge Street surfact track.

Erection of third rail and bonding of track rails.

Inspection Shop in yard--(Bids received December 28, 1920).

Bridge Street station and Terminal Trainmen's Building.

Station building and platforms at Fairmount Avenue.

Heating in Inspection Shop and in Trainmen's Building.

Plumbing in Inspection Shop, Trainmen's Building, Fairmount Avenue station and in Power sub-stations.

Plumbing fixtures and Toilet Room finish in all station buildings.

Electrical wiring and lighting in Inspection Shop, Terminal yard, stations and Power substations.

Signal system with interlocking control of switches.

Signal towers and Switch houses.

Cars--bodies and trucks--with separate contracts for motors, motor control mechanism, air brakes, couplers, and door operating mechanism.

New Power sub-station at Fairmount Avenue.

Overhead cranes in shop and in sub-station.

Extension of Power sub-station at Letterly Street.

Extension of Power sub-station at Arrott Street.

Underground conduits and manholes.

Cables for Power transmission in conduits, and feeders and connections on structure.

Remote control circuit breakers and enclosures.

Fare booths, Passimeters, Turnstiles, Railings and Gates in all stations.

Station signs.

Telephone system.

Also additional contracts will have to be placed for the equipment of the surface line to Bustleton--trolley poles and wire, bonding of the track, sub-station at Bustleton, cables, feeders signals, etc.

The sub-station power houses are for the conversion of the high voltage alternating current to the low voltage direct current required for the motors on the cars.

It is expected that the electric power will be purchased from the Philadelphia Electric Company.

The cars will be among the first contracts to be let, the number needed depending upon whether the City will operate the line (in which case operation will be only to Arch Street, and only 50 cars will be needed), or whether the Philadelphia Rapid Transit Company will operate it through to Sixty-ninth Street, when perhaps twice as many will be needed.





The design of the cars has been carefully studied in the light of the most recent developments of equipment on the various lines in the country. It has been decided to make them five feet longer than the cars now in use on the Market Street line, which is the greatest length that can be operated around the curves in the Market Street subway. They will be the same width as the Market Street cars to fit the platforms there, and the platforms of the new stations are being made for the same width. The arrangement of the doors will be an improvement over that on Market Street in that the three doors on each side will be four feet one inch wide and so placed that the flow of passengers in or out will be both ways from or to every door, and for an equal distance each side of a door. Real rapid transit facilities include means of quickly filling and emptying cars as well as high speed of trains.

The mechanism for operating the doors will be controlled electrically and will have automatic safety appliances. The car couplers will be automatic, coupling air lines and electric lines at the same time, and will uncouple by pneumatic power. Automatic speed control at entrances to blocks, and appliances for automatically stopping a train if the motorman runs past a danger signal, will be installed as well as interlocking switches and signals, and other safety devices.

The equipment of the sub-stations will be of the latest and most efficient type. The one at Fairmount Avenue is being planned to be wholly new and be built and equipped by the City on a lot which Council will be asked to authorize taking by condemnation proceedings. In view of expected operation of the line by the Philadelphia Rapid Transit Company present plans contemplate the extension of the present Philadelphia Rapid Transit sub-station at Letterly Street, and the purchase and extension of the present Philadelphia Rapid Transit sub-station at Arrott Street.

The latter station is expected to furnish power also for the southern third of the Bustleton and Byberry surface line, the track for only six miles of which has as yet been constructed. For operation of the other two-thirds a sub-station will be needed in or near Bustleton.

In December, 1920, contracts were made for the painting of the steel work of the Frankford Elevated. The line was divided into four sections varying in length, bids for which were opened on different dates to secure wider competition. The aggregate weight of the steel to be painted is about 27,169 tons and about 40,000 gallons of paint will be used. As the erection of this steel was commenced April 1, 1916, much of it has been standing nearly five years with only the shop coat of red lead paint, and as this was not a complete protection the metal has become so rusty that a thorough cleaning and a complete new priming coat have been included in the work, in addition to the two finishing coats. In view of the wide choice that there is in paint materials of established merit a variety of formulas for paint composition has been prescribed, the paint of each contract different in materials or in proportions from that of the other contracts. The ingredients--both pigments and oils--are analyzed by the chemists



Of the Testing Laboratory of the Department of Public Works and the proportioning and mixing of the paint is closely supervised by the laboratory chemists and laboratory assistants, and the work of cleaning the steel and applying the paint is under the constant supervision of our field engineers and inspectors. By this means a fairly uniform high grade of work should be secured and observation through the coming years of the weathering qualities of the several formulas of paint should afford some basis for judgment of their relative merits as steel protection.

The original priming coat, put on at the different shops where the steel was fabricated, was red lead in three different grades--one with 98 per cent. oxide ground in oil, another with oxide as low as 80 per cent. dry and mixed by hand as used, and the other a paste of 85 to 90 per cent. oxide light and fluffy. Our records show what each column and each girder was primed with, and inspection of all the work after long exposure failed to establish the superiority of any one over the rest.

The color of the finishing coat where visible from the street will be pearl gray which was approved by the Art Jury. The tops of the girders and the sides adjacent to the tracks and therefore exposed to the black metallic dust from the brake shoes of the trains, as also the body of the structure over the steam railroad tracks on Front Street, will be painted brown, and all columns for a height of six feet above the pavement will be painted dark green.

Two types of track construction are being used--ballasted and concreted. It is thought that the ordinary ballasted type in general use on steam roads and also on the Market Street Elevated--wood ties embedded in crushed stone--is the least noisy type, and it has therefore been adopted for and already laid on the Frankford Elevated from Girard Avenue to Frankford with the exception of the stretches immediately in front of station platforms where rubbish will constantly be thrown on the track and should be easily cleaned away, and where trains do not run at full speed and the feature of noise is therefore not so important. In these stretches and on the structure south of Girard Avenue the track is of the concreted type, short wood ties or blocks embedded in concrete, with long ties at the rail joints. This type is expected to involve very little maintenance expense as compared with the ballasted type, and it may be found that it will not be any noisier.

The track construction afforded an opportunity for making a test of the strength and stiffness of the single-column bent or cruciform type of elevated structure which was built from Church Street to Dyre Street in Frankford. A construction car was loaded with 70 tons of steel track rails and placed at different points to obtain test of the various members by putting on them the greatest concentration of load that will be possible with the fully loaded passenger cars. The most severe strains in this type of bent occur with the load on only one track, the effect being to depress one side and elevate the other side. The effect of the full unbalanced load was found to be somewhat less than what had been determined by calculation based on the elastic





resistance of the steel. The same load was used to test the concrete floor arches by concentrating 30 tons of it on a single square foot of floor at the middle of one of the arches, a load that could be caused in operation only by a train leaving the track. The tests were entirely satisfactory.

The station at Bridge Street is designed to facilitate the extension of the line to Holmesburg at any time in the future while maintaining the connection to the terminal yard, without involving a grade crossing of the main line tracks; the columns and girders to be erected now being adapted and strong enough to have a third track added whereby trains can either go out to Holmesburg or make their terminus at Bridge Street.

REPORT OF THE DIVISION ENGINEER IN CHARGE OF FRANKFORD ELEVATED  
CONSTRUCTION

Philadelphia, December 31, 1920

Mr. Henry H. Quimby,  
Chief Engineer.

Dear Sir:--The following is a report of the work done during 1920:

Contract 505--Column foundations in Front Street near Arch Street and in Frankford Avenue between Dyre Street and Bridge Street. Bids were opened on May 11th; notice to begin work was given to Brown-King Construction Company, contractor, on June 21st; and the contract was completed and accepted on December 22, 1920.

Contract 580--Grading Bridge Street yard and constructing abutment, retaining walls and column foundations. Bids were opened on November 11th; notice to begin work was given to Thomas Connor, contractor, on December 9, 1920.

Contract 508--Steel superstructure in Front Street, near Arch Street, and in Frankford Avenue from Dyre Street to south of Bridge Street. Bids were opened on May 11th; notice to begin work was given the Phoenix Bridge Company, contractor, on June 19th and on October 23, 1920, the contractor was notified that the foundations were all built so that he could erect the steel without interference from the foundation contractor.

Contract 585--Steel superstructure for the two-track elevated connection in Frankford Avenue from south of Bridge Street to the storage yard abutment at Bustleton Avenue and Bridge Street. Bids were opened on December 7, 1920, and the contract was awarded to the American Bridge Company but it has not yet been executed.

Contract 531--Platforms and connecting passages for stations at Allegheny Avenue and at Somerset Street. Fifty per cent. of the work to be done under this contract was completed during 1919 and the remainder was entirely completed by June 21, 1920.



Contract 532--Platforms and connecting passages of stations on Front Street at York-Dauphin Streets and at Girard Avenue. Bids were opened on August 26, 1919. Notice to Francis J. Boas, contractor, to begin work was given March 1, 1920, and the work was completed September 21st.

Contract 548--Station platforms on Front Street at Fairmount Avenue. Bids were opened on December 14, 1920. Henry E. Baton was the low bidder, but the contract has not as yet been awarded, awaiting action of Council on the new loan.

Contract 571--Station platforms on Front Street at Berks Street and on Kensington Avenue at Tioga Street and at Torresdale Avenue. Bids were opened June 22d and notice to begin work was given Francis J. Boas, contractor, on August 11, 1920 and about 10 per cent. of the work has been completed.

Contract 574--Station platform on Frankford Avenue at Pratt Street. Bids were opened July 6th; contract awarded July 10th; notice to begin work given Francis J. Boas, contractor, August 11, 1920; and to December 31st 15 per cent. of the work was done.

Contract 564--Allegheny Avenue station buildings. Sixty-five per cent. done during 1919 and entirely completed by August 23, 1920.

Contract 553--Fifteen per cent. done during 1919 and to December 31st is about 70 per cent. complete.

Contract 554--Thirty per cent. done during 1919 and entirely completed November 1, 1920.

Contract 556--Station buildings on Kensington Avenue at Tioga Street. Bids were opened May 11th; and notice to begin work was given the Standard Construction Company, contractor, on June 26, 1920, and about 70 per cent. of the work was done.

Contract 557--Two station buildings on Kensington Avenue at Torresdale Avenue. Bids were opened May 8th; notice to begin work was given W. W. Anstine & Company, contractor; on July 10, 1920, and about 60 per cent. of the work is done.

Contract 565--Station buildings at Somerset Street. Thirty-five per cent. done during 1919 and to December 31st is about 70 per cent. complete.

Contract 575--Two station buildings; one on the southwest corner at Front and Berks Streets and the other on property leased from the Pennsylvania Railroad Company on the east side of Front Street in line with Berks Street. Bids were opened June 1st; notice to begin work was given W. W. Anstine & Company contractor, on August 9, 1920, and the buildings are about 50 per cent. complete.

Contract 576--One station building at the northeast corner of Frankford Avenue and Pratt Street. Bids were opened May 18th; notice to begin work was given the Standard Construction Company, contractor, July 10, 1920, and the building is about 85 per cent. complete--the walls, floors and the roof are completed.





Contract 579--Electrical installation in seven station buildings; two on Front Street at Berks Street, four on Kensington Avenue--two at Tioga Street and two at Torresdale Avenue, and one on Frankford Avenue at Pratt Street. Bids were opened June 1st; notice to begin work was given the Electro Construction Company, contractor, on August 31, 1920, and about 65 per cent. of the work is done.

Contract 569--Electrical installation in four station buildings on Front Street; two at Girard Avenue and one each at York Street and at Dauphin Street. Bids were opened on July 22, 1919, notice to begin work was given Mearns & Corkery, contractor, on March 4, 1920, and about 98 per cent. of the work is completed.

Contract 567--Electrical installation in Allegheny Avenue and in Somerset Street station buildings. Sixty per cent. of the work was done during 1919 and to December 31st is about 98 per cent. complete.

Contract 570--Furnishing and installing the necessary plumbing, not including the fixtures, in station buildings on Front Street at Girard Avenue, at York Street and at Dauphin Street. Bids were opened on July 22, 1919, notice to begin work was given to Bulman Bros., contractor, on March 31, 1920, and about 85 per cent. of the work is done. It cannot be completed until the York and Dauphin Streets station buildings are completed.

Contract 568--Plumbing in Allegheny Avenue and Somerset Street station buildings--Sixty-five per cent. of the work was done during 1919 and to December 31st is about 75 per cent. complete. It is necessarily awaiting the completion of the Somerset Street buildings.

Contract 578--Furnishing and installing the necessary plumbing, not including the fixtures, in station buildings on Front Street at Berks Street; on Kensington Avenue at Tioga Street and at Torresdale Avenue and on Frankford Avenue at Pratt Street. Bids were opened on June 1st, notice to begin work was given to S. Faith & Company, contractor, on September 17th, and about 80 per cent. of the work is done.

Contract 573--Track floor, drains and footwalks in Front Street from Arch Street to Callowhill Street and in Frankford Avenue, from Dyre Street to Bridge Street. Bids were opened on June 22d, notice to begin work was given to the Robert E. Lamb Company, contractor, on August 11th, and about 60 per cent. of the work is done.

Contract 563--Entrance closures for the buildings previously constructed at Margaret, Orthodox, Church, and Ruan Streets stations. Thirty per cent. of the work was done during 1919 and the contract was completed by May, 1920.

Contract 562--Trank construction on the Frankford Elevated Railway from Callowhill Street to Dyre Street. The work to be done is the furnishing of rails, ties and all appurtenances for the



installing of tracks on the elevated structure in Front Street, Kinsington and Frankford Avenues from Callowhill Street to north of Harrison Street. Bids were opened on August 19, 1919; notice to begin work was given The Snare & Triest Company, contractor, on January 30, 1920, and to December 31st, 80 per cent. of the work was complete.

Contract 572--Track construction for the Frankford Elevated Railway in Front Street from Arch Street to Callowhill Street and in Frankford Avenue from Harrison Street to Bridge Street --the work being similar to that done under Contract 562. Bids were opened on July 6th and the contract was awarded to The Snare & Triest Company, contractor, on July 27, 1920. Rails and ties have all been delivered, but have not yet been laid, 15 per cent. of the work to be done under this contract was completed during 1920.

Contract 547--"Third" or conductor rail for the Frankford Elevated Railway. Bids were opened on August 18th and notice to begin work was given to the Philadelphia Rapid Transit Company, contractor, on October 6, 1920. The rails are stored in the contractor's shop at Gray's Ferry. Contract will soon be made for placing them.

Contract 701--Ninety-eight per cent. of the work was done during 1919 and the contract was completed January 27, 1920.

#### SUBWAY CONSTRUCTION

The clean-up work in connection with the construction of the City Hall station, Broad Street Subway, Contracts Nos. 101 and 102, consisting principally of the restoration of pavements, was completed early in the year and the contracts closed by the acceptance of the work by the Department and the making of the final payments thereon.

Appurtenant to the construction of the main structure several minor contracts were executed and the work thereunder completed during the year. These contracts had to do principally with the relocation and rearrangement of portions of the electrical and mechanical equipment on the basement of City Hall and were as follows:

No. 116--Electrical Conduits and Cables.

No. 117--Restoration of electrical conduits and cables in the south side of City Hall basement.

No. 118--Coverings for water softener and its connecting pipes in the basement of City Hall.

Contract No. 115, for furnishing and erecting "Sump Pumps and their Electrical Equipment" in the City Hall station of the Broad Street Subway, was awarded in the early part of the year.

On account of delay in the delivery of the motors, which are included in the equipment, the contractor has been unable to





proceed and no work has as yet been performed on this account. Pending the installation of the permanent pumps, the ground water is being controlled by the operation of the temporary pumping equipment that the Department took over from the contractor for the subway structure, upon the completion of that work.

With the cancellation of Contracts Nos. 201 and 203 and the discontinuance of construction on the Arch and Locust Streets Subways, the street paving was either temporarily or permanently restored on all the sections that had been opened up, except the one on Arch Street in the vicinity of Thirteenth Street. As no granite block could be obtained for temporarily repaving this stretch at the time the contract was closed, the timber deck in use during the construction period was permitted to remain in place for the time being. As subsequent developments indicated that it would require continual attention to maintain it in a condition safe for traffic, it was decided to replace the decking with a temporary pavement of new granite blocks on a gravel base, pending the time when the backfill had become sufficiently compacted to permit the permanent pavement to be laid. Accordingly, Contract No. 119 was executed for the purpose, and the work completed in the fall of the year. The said contract also included the restoration of a certain amount of wood block paving on Broad Street in front of the Broad Street station of Pennsylvania Railroad, which had been temporarily repaved in connection with the City Hall Subway work pending complete settlement of the backfill over the structure.



Report of  
WILLIAM S. FOWLER, Director

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Philadelphia, March 30, 1923

TO THE PRESIDENT AND MEMBERS OF THE COUNCIL  
OF THE CITY OF PHILADELPHIA.

GENTLEMEN:--In accordance with the resolution passed by your Honorable Body on the 20th of January, I submit herewith a report upon the status of the Frankford Elevated Railway. As this resolution requests not only information as to the financial status of the work, but "such other data in connection with this work as may be of benefit to the City Council in the deliberation of the subject," I have divided this report, for convenience of reference, into the following general headings:

- (a) Introduction--A statement as to the City's unsatisfactory position and the causes therefor.
- (b) A general review of the Laws under which the work is proceeding.
- (c) The status of construction.
- (d) The status of equipment.
- (e) The financial status.
- (f) The estimated operating results of the Frankford Line.
- (g) Conclusions and Recommendations.

INTRODUCTION

The rendering of transit service involves the following successive steps:

- 1--Its conception, planning and legal authorization.
- 2--Its financing.
- 3--The construction of permanent transit facilities.
- 4--The equipment of those facilities.
- 5--The operation of the facilities.

These different steps are to a greater or less extent interlocked and interdependent. Although the operation of the facilities appears last in the list of successive steps, nevertheless, the previous steps must be based on reasonably certain and definite knowledge as to how the facilities are to be operated, if the project is to be carried out in a logical manner.

In 1915 the City began the construction of certain structures intended for the improvement of transit service of the City. It





had previously developed a plan and had arranged the legal authorization and financing upon what seemed then to have been a reasonable assumption that the Philadelphia Rapid Transit Company would agree to operate such transit facilities as the City might decide to construct and thus continuing the monopoly it held of rendering transit service to Philadelphia and vicinity.

Shortly thereafter, and previous to the City's becoming committed to the comprehensive plan, I warned against proceeding to construct transit facilities in the absence of a definite understanding with the Philadelphia Rapid Transit Company as to their operation, and pointed out that the decision as to the method of operating the transit facilities was paramount to all other steps, since the manner of operation should determine not only the type, location and amount of the construction proposed by the City, but its financing and the kind of service obtainable as well.

The embarrassing position in which the City finds itself today is the direct result of ignoring or disregarding this logical relationship between transit facilities or structures and transit service; of putting "the cart before the horse," and proceeding to construct transit facilities without first definitely determining the manner of operating those facilities.

In the case of the Frankford Line, the City is particularly handicapped because work was begun on this line in the middle and no City terminal for it exists other than the Company's Market Street Subway; for the Chestnut Street Subway, although authorized and partially financed, and intended to act as an alternative terminal, does not physically exist. Construction of that subway has been delayed because of the continuing negotiations with the Philadelphia Rapid Transit Company to the end that the Market Street Subway might serve as the Frankford terminal. It is unfortunate for the City in its dealing with the Philadelphia Rapid Transit Company that but one alternative terminal has been authorized, and that one can not be made available for several years.

Although nearly seven years have elapsed since the City's transit facilities were planned and promoted, and nearly five years since the beginning of construction was authorized, I regret to say that this all-important question of their operation is still undetermined; consequently, many matters affecting the construction and equipment of the authorized lines are still in an unsettled condition. Only the first three of the successive steps necessary to improve the City's transit service have been authorized, and the City seems reluctant to take the two remaining but most important steps independently of the Philadelphia Rapid Transit Company. The Department of Transit has been authorized and instructed to construct certain definite structures in definite locations, but has not been authorized to operate those lines, nor have sufficient funds been authorized or appropriated to purchase the equipment for the lines authorized.

The difficulty in the situation is due to the control of unified service by the Company and the reluctance of the City to undertake the only alternative, which is municipal operation.



When on May 16, 1916, the people authorized "the Construction and Improvement" of the comprehensive system planned by the City, it was on the following representations:

1st--That the terms "Transit Facilities" and "Transit Service" were practically synonymous, and that the City's high-speed facilities would be operated by the Philadelphia Rapid Transit Company on a unified basis, thereby extending the monopoly enjoyed by that Company under the Contract of 1907.

2d--That all cars, power supply and other necessary equipment of the lines would be furnished by the Company. The Company's initial investment was then estimated at 20 per cent. of the City's investment, increasing to 30 per cent. by 1930.

3d--That the fare would be five cents, with universal free transfer.

4th--That the unified system as a whole would be self-supporting, and if the City's System should not be immediately self-supporting, it would not be responsible for any increase of fares or taxation.

Some of these assumptions were absolutely unwarranted, and in later negotiations with the Philadelphia Rapid Transit Company they were demonstrated to be impossible of attainment, but no substitute basis for unified service, satisfactory to the Company, the City and the Commission, has yet been formulated.

Although several proposals and counter-proposals have been submitted by the Company and the City for the operation of the City's System as a comprehensive unit, until very recently no serious consideration had ever been given to any plan contemplating the breaking up of the City's System and the leasing of any single line as an independent unit. In October last, however, the Company submitted a proposal for the operation of the Frankford Line without making any reference to or provision for the operation of the remainder of the authorized system of the City. Inasmuch as the financing and construction of the City's comprehensive system has been authorized as a unit by the people, the legality may be questioned of segregating the various lines and attempting to lease a particular line without reference to the remaining lines of the system.

The Company's latest proposal was discussed at two public hearings of Councils' Joint Committee of Finance and Street Railways, at the second of which I submitted a full discussion of its defects. On November 20th the Company voluntarily withdrew its proposal.

At the last public meeting held to consider the Company's proposal, an exceedingly perplexed state of mind seemed to exist among the members of Councils' Committee, as well as among the public participants in the discussion, as to what policy the City should adopt in regard to operating the Frankford Line. Inasmuch as the City is obliged to submit all contracts between the City and the Company to the Public Service Commission for approval, I deemed it desirable to secure, if possible, from the Commission, its advice and suggestions as to the most expeditious and effective method of procedure to the end that a prompt settlement of this situation might be brought about. Therefore, on November 15th, the day fol-





Following the second meeting of Councils' Committee, I addressed the following letter to the Chairman of the Public Service Commission in the hope that his suggestions and advice might be received before the Committee again met to consider this matter:

DEPARTMENT OF CITY TRANSPORTATION

Philadelphia, November 15, 1915

Mr. William D. B. Ainey, Chairman,  
The Public Service Commission  
Harrisburg, Pa.

Dear Mr. Ainey:

A critical situation has developed in the transit affairs of Philadelphia. Mr. Mitten, the President of the Company, has submitted to Councils two ordinances, copies of which appear as Appendix "B" and Appendix "C" of the report therewith enclosed. One of these is a direct appeal for City aid; the other an indirect appeal made by the Company in order to avoid raising the fare question at this time.

The real point of the situation is this--the report herewith enclosed shows conclusively on pages 17 to 22 that the service furnished by the Company at the present time is far from adequate, and the Company admits that it is inadequate. It further shows that the amount of service has increased in the last six years only 5 per cent. although the traffic has increased nearly 50 per cent. Furthermore, Mr. Mitten forecasts an increase of at least 15 per cent. in traffic for the coming year, or approximately 110,000,000 revenue passengers, and presents no plan for caring for this traffic beyond offering to operate the Frankford Elevated line after it shall have been completed and equipped by the City without the investment of a dollar by his Company. It is admitted both by the City and the Company that the facilities offered by the Frankford Elevated line will not attract traffic in excess of 30,000,000 revenue passengers per year when first operated, and as it cannot be operated in any even before the latter part of the coming year the greatest relief that could be afforded by this line would be to carry not exceeding 15,000,000 passengers (revenue). As the contemplated increase of traffic is estimated at 110,000,000 additional revenue passengers, it is readily seen that this leaves nearly 100,000,000 additional to be carried upon the present surface facilities.

Mr. Mitten declares he cannot furnish additional facilities. The reason he gives for not being able to supply adequate facilities is that the Company is without credit and cannot supply the capital necessary; as a matter of fact, Mr. Mitten cannot make the present fare support the operation of additional facilities, even if capital charges be disregarded.

It is of course, well known to you that this situation which has developed in Philadelphia is not unique; it is the same situation which has developed all over the country.

In view of the fact that the Commission recognized in 1915 that



high-speed service was necessary for public convenience in Philadelphia and issued the certificates for the construction of such lines, and that Mr. Mitten now offers simply \$1 a year rental for the Frankford Elevated which will cost the City \$11,000,000 to complete and equip, the City is facing a very perplexing situation. The Commission in the order rejecting the lease on January 19th last expressed the belief that the car service of Philadelphia should be handled by one operator on a unified basis, and it was in such a belief that the City began construction of its high-speed system. Now, when the first line of that system is approaching completion, Mr. Mitten publicly admits that he cannot operate it on a unified basis, pay any of the capital charges and still maintain a 5-cent fare. It is also evident that he cannot give even adequate surface car facilities and maintain the 5-cent fare, as shown by the fact that he is unable to make any provision for the approximate 100,000,000 increase in surface car traffic anticipated for next year. As the 5-cent fare has become a hobby with him, and as it is evident that the 5-cent fare does not produce revenue enough to support the service, and as the City cannot secure his co-operation in caring for this traffic in any way except in such manner as involves the City's subsidizing his Company and thereby recognizing the over-capitalization which exists in the system, the City is placed in an exceedingly perplexing position.

Inasmuch as the City lacks the power to compel the Company to provide adequate service, and as all matters of service must be approved by the Commission and as some form of contract must exist between the Company and the City providing for the use by the Company of such facilities as the City may finance and furnish, and as the settlement of this problem is extremely urgent and the viewpoints of the City and Company so widely divergent, I am taking the liberty of writing you at this time and will appreciate it exceedingly if you can outline in a general way such suggestions as you may care to make regarding the solution of the difficulties, and indicating the method and order of procedure which must be adopted in order to bring this matter properly and effectively before the Commission.

The Company refuses either to pay more than a nominal rental of \$1 for the use of \$11,000,000 of City money or to consider this as an increase of its capital stock which shall share in the division of new earnings, but insists that the City's money shall be treated as common stock and its present \$30,000,000 of stock as 5 per cent. cumulative preferred.

Very truly yours,

(Signed) WM. S. TWINING,  
Director.

To this letter the following reply was received two weeks later:

THE PUBLIC SERVICE COMMISSION PENNSYLVANIA

THE CHAIRMAN

November 29, 1919.

Hon. W. S. Twining,  
Director of City Transit,  
Philadelphia, Pa.





MY DEAR MR. DIRECTOR:

I thank you very much for your thoughtfulness in sending me memoranda of your views with respect to the Philadelphia Rapid Transit situation in connection with the Frankford Elevated. I have read it with much interest and enlightenment.

Very truly yours,

(Signed) WM. D. B. AINEY.

Realizing then that no official suggestion or expression of opinion could be expected from the Public Service Commission, and being convinced of the great desirability of a unified transit system for the City, I formulated the operating proposal which appears at the close of this report. This proposal conforms as closely as practicable to the suggestions offered by the Public Service Commission in refusing approval of the recent operating contract between the City and the Philadelphia Rapid Transit Company. That order, together with the Commission's opinion in full appears on pages 72 to 78, inclusive, of the report of November 21, 1919, submitted herewith.

The great change in economic conditions resulting from the war, together with the absolute rejection by the Public Service Commission of the contract for unified operation, indicates that precedent to securing a satisfactory agreement for the operation of the contemplated City's System, a general revision of the plans for that system will be necessary.

#### THE INCREASING INADEQUACY OF TRANSIT SERVICE UNDER THE COMPANY'S MONOPOLY

For a period of about twenty-five years the Philadelphia Rapid Transit Company and its predecessors have enjoyed a practically complete monopoly of the privilege of rendering transit service in Philadelphia. During the early years of that period great enterprise was shown in extending and developing the service, and encouraging traffic, but for at least the last ten years the City has suffered from lack of adequate service and today the suffering is acute and must be alleviated.

To render the adequate service that is required today facilities approximating \$20,000,000 in value should be supplied, and put in service immediately, and within the next ten years at least \$50,000,000 more should be supplied, a large part of which should be used for rapid transit. About one-half of the \$20,000,000 of facilities needed immediately is represented by the Frankford Line and one-half by surface line extensions and equipment.

Rapid transit is not only a necessity for Philadelphia now, but has been for years past. The City and the Public Service Commission recognize the many advantages which will accrue from unifying rapid transit and surface car service, and the Commission in its report of January 14, 1919, Rejecting the contract submitted to it for approval, expressed its views as follows:



"Under the proposed unified system, the accounts of the City and the Company will be combined."

While all parties desire to secure possession of the Frankford line, the proposed system is similar to that by which the City operates its street-car system.

The proposed system is but one, but probably the most important, result of a study of the Frankford Line is but one phase of this study, and to give effect to it no question would arise over the Frankford Line, as the equity and justice of the City cannot be a consideration.

The Frankford deadlock is really a controversy over whether the line shall be treated as an independent line, or as a part of the City's system, as a favor to the City. The Company's proposal does not in any way contemplate the City's ownership of the line.

The care of the Frankford line will be upon to be met by the City. The Company's proposal must be supplied with street-car facilities. In 1920, an increase of 1,000,000 passengers was carried in 1919. The Company states, moreover, are operated to the maximum possible in the delivery of cars during rush hours, and additional cars introduced only serve to increase the congestion.

Despite the present deplorable condition of the Frankford line, the Company's expected increase in business during the winter of 1920, 125,000,000 passengers, corresponding to \$5,000,000 increased revenue, offers absolutely no solution to the traffic congestion. The statement that "there should be intelligent co-operation between the City and the Company to accomplish the completion and equipment of the Frankford 'L,' so that it may be operated as a part of the City's System during the winter of 1920."

Despite the Company's complete dependence upon the Frankford Elevated, it has not offered to invest a dollar in its equipment or construction, nor to operate it. The City presents the line free to the Company. The Company considers it intelligent to operate the line.





## Status of Construction upon the Frankford El

The words "Transit Facilities" as used in the Department of City Transit, include all apparatuses, appliances, and appliances used in transit service. The general term may be used as part of the physical plant of the transit system used in the rendering of transit service.

Transit facilities are classified as follows:

1st--Permanent buildings, structures, etc., of a permanent character.

2d--Equipment, including vehicles and all apparatuses or more or less temporary character; or tools or apparatuses used in the maintenance and operation of the cars.

Strictly speaking, transit facilities are used in the operation of vehicles for transportation of passengers on the transit routes. All apparatus, appliances and appliances on vehicles or their operation may be ordinarily classed as transit facilities; and the term "construction" is used to designate the provision of the necessary facilities for the operation of vehicles and equipment. The term being subject to wear, of a more or less temporary nature, generally; although in the case of certain structures, which are part of the permanent plant, the term "construction" is used.

In proposing to develop transit in transit development, City originally proposed to build certain structures of certain definite character and form, as described. These structures include elevated roads, tunnels, bridges, etc., and are intended for the use of vehicles to run on. The term "construction" is used to designate these structures. The term "equipment" is used to designate those structures which are intended to limit its participation in transit and to of permanent structures only. In the attached correspondence (see Appendix "B") will be enlightening, it sets forth the intention of the City in these terms, and upon the methods to be used in carrying out the ordinances. At the date of this correspondence a contract had been signed City and Company and was under consideration by the Public Service Commission, providing for the operation of the City's System by the Company and for the furnishing of all equipment, as well as permanent structures by the City. The opinion of the City Solicitor is that the equipment is a vital and necessary part of the system. Although that part of the ordinance was disapproved, not thereby been relieved of the necessity for the provision of all necessary equipment shall be ready.



are completed. Otherwise an unnecessary expense will be incurred in operating the line is forecast.

The Status of Physical Connection of the Lines

At the present time an anomalous condition exists in the connection of the Frankford Elevated Line to the City's line. The Public Service Commission, in its Certificate of Public Convenience approving the connection and maintenance of the physical connection of these two lines subject to the following conditions:

"First: That the Philadelphia Rapid Transit Company shall install and maintain an interlocking signal tower to be located at a point where trains in all directions can be held under control by an operator whose duty shall be to operate switches and dispatching the movement of trains.

"Second: That the said transit company shall also install and maintain electric track signals, said signals to be installed and operated at both caution and danger points.

"Third: That the said transit company shall submit to the Commission for its approval the location of the interlocking signal tower and the track signals as required in the above conditions."

It is noted from the above conditions that the connection is an agreement between the City and the Company for the joint use of facilities. Negotiations with the Company for an agreement permitting this connection were begun immediately, and on April 17, 1910, the Company submitted the outline of an agreement to the City Solicitor. A copy of that agreement, together with the letter of transmittal and the City Solicitor's report, is attached as Appendix "C". It will be seen from the letter of the City Solicitor that this connection can only be made under a specific contract therefor has been authorized by the Councils, the Mayor and the President of the Company, and approved by the Public Service Commission. Also Councils have approved the expenditure of the funds, as these funds are to be expended upon the property of the Company. Also it must be understood that the physical connection of the tracks of the City and Company's lines does not thereby confer the right to use the tracks jointly; such use must be made under the terms of the contract.

#### Status as to the Equipment of the Line

Although, as has been indicated, the definition of the term "equipment" is somewhat hazy, it is usually understood to cover the vehicles and movable or perishable parts of a railway which are subject to wear, and therefore distinct from the structure proper, forming the "permanent way." When applied to the City's system to be operated under a lease





lease the term covers practically all forming a part of the project, beginning the operation of the line and to provide for future increase.

In all estimates of cost of the project, the following items have been considered as its "equipment":

- 1--Track and its appurtenances, including ball ties, bonding, etc.
- 2--Rolling stock and cars of all kinds.
- 3--Low-tension line and its appurtenances, and any necessary ducts or supports therefor.
- 4--High-tension alternating-current feeder cables supports, ducts or conduits therefor.
- 5--Third rails, signals, switch towers, telephones and other for communication, and all appurtenances thereto.
- 6--Power stations (if power is not to be purchased) and substations and real estate needed therefor.
- 7--Car barns, storage yards, shops, offices and necessary real estate therefor.
- 8--Lighting fixtures and wiring, and any conduits or ducts therefor.
- 9--All ticket offices, railings, turnstiles and miscellaneous equipment for controlling traffic at stations.
- 10--All miscellaneous operating machinery and apparatus for drainage or ventilation of tunnels, subways, etc.

The cost of these items upon the first operating section (from Front and Arch Streets to Bridge Street, Frankford) is estimated to total \$3,825,000, on the assumption that the line will be operated by the Philadelphia Rapid Transit Company, and that the electric operation will be purchased from the Philadelphia Electric Company. (See Statement No. 1).

In accordance with the City Solicitor's opinion (see Appendix B), the Department is proceeding upon the plan that the funds be applied first to the completion of the permanent structure, and if any funds remain after providing for such purposes, they might be applied toward the purchase of the first operating section. According to the estimates of the cost of the first section, it can be seen that of the money already appropriated, approximately \$7,000,000 is available for, and therefore applicable to, that purpose.



As the track work on the border-line between permanent way and perishable equipment, the Department decided to expend such part of the \$700,000 as might be required to place the track in position on the deck of the elevated structure, and invited bids, which were opened on August 19, 1919, with the following results:

1--The Snare & Triest Company	\$462,010.00
2--M. & J. B. McHugh	521,328.00
3--North American Ry. Constr. Co.	539,339.00
4--E. C. Fish Company	540,777.00
5--Jas. McGraw Company	542,760.00

Award was made to The Snare & Triest Company, the low bidders, and the limit of the contract was placed at \$520,000.

The bid of \$462,010 by The Snare & Triest Company covered the track construction between Front and Callowhill Streets and Harrison street and Frankford avenue only, and as the bid was based on unit prices for work within those limits, the limit of contract was placed \$58,000 higher than the aggregate bid price, in order to provide sufficient margin for extending the tracks south from Callowhill street to a connection with the Philadelphia Rapid Transit Company's system at Arch street and north from Harrison street to the proposed storage yard at Bridge street. At the time the contract was awarded the contractor appeared willing to furnish this additional track at the unit prices of the contract. He has since, however, objected to furnishing track additional to that specified, hence, these track connections will necessarily have to be made under a separate contract.

No steps have been taken toward the purchase of the remaining items of equipment because the margin of loan funds available is too small to purchase them all, and no time will be gained by the purchase of some one of the smaller items unless the cars and larger items can be purchased simultaneously--that is, the item requiring the longest time for delivery will govern the time needed to supply the equipment for the line. Those items are undoubtedly the rolling stock and power equipment; delivery of which will probably require upwards of nine months from date of the order or contract.

Even if funds were available for the immediate purchase of this equipment, the City is seriously handicapped by a lack of definite knowledge as to how and by whom the line is eventually to be operated. With the possible exception of Item No. 1, covering the track, all other items are, to a large extent, dependent upon the amount of traffic to be handled, and the amount of traffic is in large measure dependent upon whether the system is operated on a unified or independent basis. This the number of cars required on a unified basis may vary 300 per cent. as between independent and unified operation

Moreover, the type and design of the cars and all other items should be determined only after consultation with the operator of the system. The cars and all other items of equipment should be of the latest type and design and should embody all the modern improvements, even though in so doing they should not conform rigidly to the Company's present standards.





This matter of equipment is much more closely tied in with the question of operation than the matter of the structure itself. As an instance, consider the matter of substations. The Company at present operates two substations in the immediate vicinity of the line, one being on Cumberland Street near Kensington Avenue, and one being at Arrott street and Frankford avenue. The Company, by the enlargement of these substations, could probably operate with a much less outlay for ducts and other appurtenances than the City would be required to make for municipal or independent operation.

Furthermore, in the matter of car barns, storage yards, shops, etc., it is highly important to determine whether the Company shall be the operator and its shops at Sixty-ninth street are to be used for the repair of the rolling stock, or whether independent shops are to be provided for this particular line. In other words, on a unified basis the Company's outlay per passenger carried would be much less than the City's, but the large increase in passengers, due to operation on a unified basis, would make the total gross outlay approximately the same, whether operated by the Company or independently.

Furthermore, the size, type and location of ticket offices, turnstiles, railings and all other appliances necessary for the control of traffic at the stations along the line should be determined by the operator of the line, or in consultation with him. Although operation of this line has been contemplated for the past seven years, the Department has so far failed to receive from the Company any definite suggestions relating to these details of operation and equipment. As set forth in the City Solicitor's letter, a decision must be reached promptly in regard to this matter of operation because the date for beginning operation will not be determined by the date of completion of the structure, but the date when the necessary equipment becomes available. This matter of securing the equipment is particularly difficult for the Department to handle, because competitive bids must be secured, based on plans and specifications, the preparation of which involves considerable time, and assumptions as to the probable method of operation. Although the Company undoubtedly expects to eventually operate this line, there is no evidence that it has taken even preliminary steps toward providing any part of the equipment or of arranging their finances so as to permit of its being purchased. There is no doubt that the Company, being free from the legal restrictions which hamper the City could secure the equipment in a very much shorter time than could the City, and if the Company could be induced to proceed to supply the equipment, the operation of the line would be assured at a date much earlier than if no steps are taken until after the execution of an operating agreement.

#### The Financial Status of the Frankford Elevated Line

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Two loans have been voted by the people for the construction of transit facilities. The first loan voted April 29, 1915, was a 30-year long of \$6,000,000, to be applied "toward the construction of a subway railway in Broad street with branches, and the construction of an ele-





vated railway from Front and Arch streets to Rhawn street." The second loan voted by the people on May 16, 1916, was a 50-year loan totalling \$67,100,000 to be applied and expended as follows:

- 1--For port and harbor development \$10,000,000
- 2--Toward the construction and improvement of subways, tunnels, railways, elevated railways and other transit facilities, including interest and sinking fund charges during the construction period and one year thereafter. 57,100,000

Subdivided as follows:

(a) Broad Street Subway and branches	\$25,000,000
(b) Frankford Elevated Railroad from Front and Arch streets to Rhawn street	4,400,000
(c) Thirty-fifth Ward Surface Railway	1,200,000
(d) Darby Elevated Railway	4,200,000
(e) Parkway-Roxborough Line	7,500,000
(f) Delivery loop subway	7,600,000
(g) Chestnut Street Subway	5,000,000
(h) Real estate and easements	2,200,000

Total

\$67,100,000

The status of the work on the First Operating Section of the Frankford Line is set forth in the following table:

FRANKFORD ELEVATED RAILWAY  
First Operating Section

Class of Outlay	Total estimated cost	Money ex- penditure by City to March 1, 1920	Per cent. of present cost to final cost	Funds available for completion	Notes
Real estate	\$600,000	\$291,607	48.5	\$308,393	Funds sufficient
Construction Contracts (including tracks)	5,720,660	3,632,841	63.5	2,087,819	Funds sufficient
Equipment	3,285,000	---	0	179,340	Deficiency \$3,105,660
Engineering and Miscellaneous	600,000	493,615	82.3	106,385	Funds sufficient
Interest	900,000	160,000	17.8	740,000	Funds sufficient
Totals	\$11,105,660	\$4,578,063	41.0	\$3,421,937	Deficiency \$3,105,660





This table is based on the use of \$7,400,000 appropriated for the construction and improvement of this line as follows:

Reserve for interest and Sinking Fund charges (15 per cent. of \$6,000,000--50-year loans)-Item 5	\$900,000
Construction Contracts and Engineering and Miscellaneous payments-Items 2 and 4	<u>6,320,660</u>
Total	\$7,220,660
Remainder of Loans Nos. 211 and 180 available for equipment of line (or construction of second operating section)	<u>179,340</u>
Total appropriation available	\$7,400,000
Real estate (Item 1) to be paid for out of special Item No. 217 of Loan	<u>600,000</u>
Total	\$8,000,000
Deficiency in funds	<u>3,105,660</u>
Total cost of first operating section \$11,105,660	

Of the \$6,000,000 loan of 1915 the entire amount has been issued; while of the \$67,100,000 loan of 1915 but \$4,000,000 has been issued for transit purposes. The \$6,000,000 loan of 1915 was divided by Councils in the authorization ordinance of July 2, 1915, equally between the Broad Street Subway and the Frankford Elevated Line, thus making \$3,000,000 available for the construction of each line. In the 50-year loan of 1916 the amount specifically set aside for the Frankford Line was \$4,400,000; therefore, the total amount appropriated for the construction of this line is \$7,400,000. In addition, the loan of 1916 carries an item for real estate and easements, applicable to any and all of the lines, and as the real estate item, thus making approximately \$8,000,000 available for the purchase of real estate and the construction of this line. As set forth in Statement No. 1, this is approximately the sum needed to complete the construction of the first operating section of this line (Arch to Bridge street) without the equipment. This forms but the beginning of the high-speed system as authorized and planned. In addition, the extension of the line three miles beyond Bridge street to the authorized terminus at Rhawn street will require, it is estimated \$3,237,000 for the structure and \$1,640,000 for its equipment--a total of \$4,877,000. Also, if the recommended branch from Front and Kensington avenue to Broad and Erie avenue be built, a further investment of approximately \$4,500,000 will be required. It will thus be seen that to complete the Frankford Line as authorized to equip it, and to build and equip the Erie avenue branch, will require a further issue of City bonds to the extent of about \$12,500,000, divided as follows:

- (1) The equipment of the first operating section to Bridge street \$3,105,000
- (2) Extension of line to Rhawn Street, with equipment 4,877,000
- (3) Branch line to Broad and Erie Avenue with equipment 4,500,000



This sum, added to the \$8,000,000 now available, would enable the Frankford system represent an investment in excess of \$20,000,000 when ready for operation.

Statement No. 2 herewith is a statement on which are shown the expenditures that have been made from the funds appropriated from each loan, and it will be seen that as of March 1, 1920, there was an unencumbered balance from the loan of 1915 of \$311,597, and from the loan of 1916, \$1,426,128, or a total unencumbered balance of \$1,737,725.

STATEMENT No. 2  
STATUS OF FUNDS AVAILABLE FOR "CONSTRUCTION AND IMPROVEMENT" OF  
FRANKFORD ELEVATED RAILWAY MARCH 1, 1920

Set aside out of appro-	30-Year Loan	50-Year Loan	Total
	Authorized	Authorized	
	June 30, 1915	June 29, 1916	
Set aside out of appro-			
priation of July 2, 1915:			
for "Construction" of			
line that section of the:			
Frankford line lying			
between Callowhill and			
Rhawn streets (A).....	\$3,000,000:		\$3,000,000
Authorized out of an-			
propriation of July 20,			
1916, for "Construction:			
and Improvement" of			
Frankford Elevated Rail-			
way between Arch street:			
and Rhawn street (inclu-			
ding interest and Sinking			
Fund charges during			
construction) (B).....		\$4,400,000:	4,400,000 *
Total funds available			
for "Construction and			
Improvement" of line			
(including interest and:			
Sinking Fund charges,			
etc.).....	\$3,000,000:	\$4,400,000:	\$7,400,000
Reserved by Controller			
from 50-year loan appro-			
priation for payment of:			
interest and Sinking			
Fund charges during con-			
struction and until the:			
expiration of one year			
after the completion of:			
the work (15 per cent.			
of loan).....		660,000:	660,000





Net funds available	\$3,000,000	\$3,710,000	\$5,740,000
for "Construction and Improvement" of Line			
Expenditures to March 1, 1920:			
Construction contract	\$2,168,518	\$1,420,170	\$3,588,988
Relocation, P.R.T.			
surface tracks.....	43,853		43,853
Engineering and mis- cellaneous.....	476,032	17,583	493,615
TOTAL EXPENDITURES.....	2,688,403	1,438,053	4,126,456
BALANCE AVAILABLE			
MARCH 1, 1920.....	\$311,597	\$2,301,947	\$2,613,544
Construction contract encumbrances.....		875,819	875,819
Unencumbered balance of: appropriation (March 1, 1920).....	\$311,597	\$1,426,128	\$1,737,725

(A) Appropriation ordinance of July 2, 1915, appropriated to Department of City Transit the \$6,000,000, authorized to be borrowed by ordinance approved June 30, 1915, to be used toward construction of Broad Street Subway and Frankford Elevated Railway, Arch street to Rhawn street.

Ordinance of July 2, 1915, authorized construction by Department of City Transit of portion of Frankford Elevated Railway comprising the section between Callowhill street and Rhawn street and set aside \$3,000,000 for that purpose out of appropriation of same date.

(B) \$2,200,000 has been authorized and appropriated toward the acquisition of real estate and real estate easements for all lines. \$600,000 of this is estimated to be required for the Frankford Elevated line of which \$291,607 has been expended to date. These items are not included in this tabulation.

The \$4,400,000 appropriated July 20, 1916, toward the construction and improvement of the Frankford Elevated Railway, contains the provision that the

"interest and sinking fund charges accruing and which may accrue thereon throughout the respective periods of construction, and until the expiration of one year after the completion of the work for which such indebtedness shall have been incurred."

shall be paid out of the appropriation. In order to meet the requirements of the ordinance, and based on estimates as to the length of the construction period, the Controller has decided to reserve 15 per cent. of the gross appropriation to meet these carrying charges, thus leaving for construction purposes, but 85 cents out of each dollar of the appropriation. This 15 per cent. is substantially double the amount originally estimated that the carrying charges



would consume. Diagram No. 1111 shows that has been made to carry out the large reservation is deemed necessary in order to safely provide the carrying charges upon bonds actually issued, although the proceeds thereof may not have been expended for the purpose authorized. the diagram, it should be noted that the calculated interest charges on money actually expended on the Frankford Elevated from this loan (approximately 40 per cent. of the available appropriation) amount to but \$50,300 as of December 31, 1919, out of the \$660,000 which the Controller has reserved for that purpose. Attention is called to this matter at this time because in all future loans it should be distinctly specified that it is the interest on the money expended which is to be capitalized and not the interest on unexpended money. Furthermore, I have repeatedly pointed out that it is absurd to pay sinking funds on loans out of the loans themselves. Future loans should also contain a limitation as to the amount of the loan which may be applied to the interest and sinking fund charges, and I have heretofore recommended that this limit should not be greater than 10 per cent. of the loan.

It is unfortunate that the amount of the loan applicable to carrying charges was not made a separate item as was done in providing for necessary real estate, because the Controller in carrying out the ordinance actually treats the carrying charges as a distinct item, and has arbitrarily set to its credit 15 per cent. of the appropriation for each individual item. This is an exceedingly important matter and should be corrected in the authorizing of any future loans for the completion or extension of the City's System; and the first loans for such purpose will probably be for the completion of the Frankford Line.

#### THE ESTIMATED OPERATING RESULTS OF THE FRANKFORD LINE

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The purpose of constructing transit facilities is that they shall be used in rendering transit service to the community. It is now nearly thirty years since the first attempt was made to build an elevated railway to serve the northeast district of the City, and the need of this service is urgent and should be supplied at the earliest date possible. Philadelphia, with upwards of 2,000,000 inhabitants, has suffered for many years from a lack of high-speed transportation. Someone has stated that "the transportation service of any community is the measure of its civilization; and every community feels humiliated when it is compelled to apologize for the inadequacy of its transit service." Philadelphia, for many years, has been compelled to apologize for its lack of high-speed service, and despairing of obtaining such service through private enterprise, it undertook in 1915 to supply certain transit facilities, and for nearly seven years has been engaged in attempts to secure the co-operation of the Philadelphia Rapid Transit Company.

The public was led to believe that the difficulty in the situation was the Company's lack of capital necessary to construct the facilities needed. That this point of view is wholly erroneous has been shown by the fact that although capital in abundance has been voted by the people for subways and elevated structures, the service desired is still far off.





In order to show the serviceability and probable financial realization from operation of the Frankford Elevated Railroad, Tables Nos. 3, 4 and 5 are presented, giving the estimated statistics of the line under the various methods and conditions discussed.

The operation of the line to Bridge street by the Philadelphia Rapid Transit Company is expected to accommodate 34,700,000 passengers in the year 1923. The addition of the elevated branch line from Front and York streets to Broad street and Erie avenue is estimated to increase the number of passengers carried to 48,500,000 for the same year. This substantial increase in the traffic of the line, is submitted, justifies the construction of this branch line.

If the line be operated independently of the Philadelphia Rapid Transit Company System to a terminal at Front and Arch streets, the line is estimated in 1923 to carry only about 10,000,000 passengers. If, however, a terminal in the main delivery district by either of the routes suggested be constructed for the line, the passenger traffic is estimated to be increased to 22,900,000 with municipal operation, and if the branch line to Broad street and Erie avenue is also constructed 28,000,000 passengers are estimated for the year 1923.

The costs of operating the line is shown in Table No. 3 are based on an average loading of 86 passengers per car during the maximum rush hour. This average loading is based on a maximum car loading of 107 for the Market Street Elevated type of car. This is the basis used in previous estimates of the Department. The Company however, in operating the Market Street Elevated Line has not adhered to this standard of loading, the cars of that line at present being loaded to an average of 120 passengers per car, and a maximum of 170 or over. That the cost of carrying the passenger traffic of a rapid transit line is in a large degree dependent upon the standard of car loading adhered to is borne out by the fact that compliance with a standard of loading of 86 passengers per car on the Market Street Elevated Line would require an increase of about 40 per cent. in the present rush-hour service.



TABLE No. 3

FRANKFORD ELEVATED RAILWAY

FOR THE YEAR 1925

Based on Average Car Load of 100

OPERATION BY CITY 5¢

DELPHIA RAPID TRANSIT

COMPANY

LINE

STREET

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Delivery Terminal via

via

Frankford Terminal

Line to at Front

Frankford Bridge St. and Arch

Line to 14th St.

Bridge St. to 15th St.

Frankford Bridge St. to 15th St.

Frankford Bridge St. to 15th St.

Frankford Bridge St. to 15th St.

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Frankford Bridge St. to 15th St.

Subway in Elevated

Chestnut in Arch

Street to 8th and

15th St.

Streets to

Broad and

Frankford

Frankford

Frankford

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Number of  
passengers  
yearly-----

31,700,000 10,700,000 9,700,000 22,900,000 12,000,000 23,000,000 10,000,000

Gross revenue-----

\$1,260,000 \$1,652,000 1,000,000 1,150,000 1,150,000 1,419,000 1,419,000

Operating ex-

penses and

taxes-----

855,000 1,190,000 1,000,000 1,000,000 1,000,000 1,001,000 1,001,000

Net earning:

375,000 462,000 27,000 157,000 357,000 418,000 418,000

Interest and

Sinking

Fund Charges:

676,000 831,000 497,000 500,000 716,000 1,105,000 1,105,000

Deficit.....

\$ 261,000 \$ 369,000 \$ 470,000 \$ 546,000 \$ 750,000 \$ 687,000 \$ 687,000

Tables No. 4 and No. 5 have been prepared in order to present estimated operating results for the Frankford Elevated Railway with present Market Street standards of service. It can be seen from Table No. 4 that the increasing average hour loading from 86 to 120 passengers per car effects a substantial reduction in the operating expense. The corresponding reduction in the required amount of equipment also reduced the interest charge. The combined effect of these factors results in the substantial reduction in the deficit.





1923 of \$261,000 for the Philadelphia Rapid Transit Company, of the Bridge street, as calculated in Table No. 3, is \$37,000. Market Street Elevated standard of loading. In the same main line with branch is reduced from \$369,000 to of the Frankford Elevated Railway, and the result from the heavier loading of cars. The incurred by the City in the municipal operation of the Bridge street to Broad and Sansom, and the suggestion with the ample service provided in Table No. 3 estimates, based on the present Market Street Elevated standard.

The class of service provided very materially affects the cost of operation facilities. The favorable financial results, estimated in Table No. 4, with those of Table No. 3, with equal gross revenues, is indicative of operation, such as is contemplated for the Frankford Elevated Railway, revenue to be credited to the elevated line. With predetermined passenger traffic the calculated revenue is based on the base fare, but also upon the transfer fare between the elevated and surface lines.

In estimating these results in Tables No. 3 and No. 4 the elevated line is credited with the full 5-cent fare of each passenger making a transfer. For all transfers to or from surface line, however, a credit has been made against the elevated--that is, the fare of a passenger using both elevated and surface lines has been divided equally between them.

The inequity of an equal division of the joint fare is readily demonstrated. A traffic investigation of 1912 showed that the elevated line carries approximately three-quarters of the passenger traffic, while the surface lines one-quarter--but in the case of the elevated line the surface car speed, this three-quarters of the journey will be made in the time formerly occupied. If transfers are to be free, it would be unfair for the elevated line should, in fact, receive the full fare of all passengers, who use both lines, and the surface system should share the loss of fare for being relieved of excess and long-haul traffic. If the elevated line would show favorable financial results. If it should be considered unfair for the surface lines to absorb the entire cost of the elevated line, it cannot be considered unfair to follow steam-road practice and apportion this fare between the lines on the basis of the relative length of haul on each line. 75 per cent. of the fare would be apportioned to the elevated line, and this would be sufficient to support the elevated service.

In the following tabulation, the Table No. 4 estimates of the Philadelphia Rapid Transit Company are revised. The 5-cent fare of passengers using both surface and elevated facilities be divided equally between the elevated line and 1 1/2 cents to the surface line, which the estimates presented in the previous tables are based.



TABLE NO. 1

FRANKFORD ELEVATED RAILWAY--COMPARATIVE STATEMENT--

FOR THE YEAR 1923

Based on figures furnished by the

OPERATION BY PHILA- DELPHIA RAPID TRANSIT COMPANY IN CONNECTION WITH MARKET STREET SUBWAY ELEVATED--5c FARES--FREE TRANS- FERS (FARES OF SURFACE TRANSFER PASSENGERS DIVIDED 2½ to 2½ CENTS)		RAPID TRANSIT COMPANY	
		BRIDGE STREET	BRIDGE TO
		Delivery Terminal via	Delivery Terminal via
Frankford: Bridge		Frankford: Bridge	Frankford: Bridge
Line to Street and		Subway in Arch, 8th	Subway in Arch, 8th
Bridge Street		and Sansom	and Sansom
Street		Street to	Street to
Street and		15th Street	15th Street
Erie Avenue		Streets	Streets
Passengers			
carried yearly---		34,700,000	48,500,000
		22,900,000	22,900,000
		28,000,000	28,000,000
Gross revenues---		\$1,260,000	\$1,652,000
Operating expenses			
and taxes-----		701,000	257,000
		656,000	656,000
		320,000	320,000
Net earnings---		\$559,000	\$1,395,000
Interest and Sink-			
ing Fund charges		594,000	783,000
		858,000	671,000
Deficit-----		\$35,000	\$89,000
		\$356,000	\$169,000
		\$1,883,000	\$1,883,000





TABLE No. 5

OPERATION BY PHILADELPHIA RAPID TRANSIT CO. P. BY IN CONNECTION WITH MARKET STREET SUBWAY ELEVATED LINE--5c FARES, 1923  
OF SURFACE TRANSFER RIDERS DIVIDED 3-2, IN PROPORTION  
NEWARK LINE, 15c TO SURFACE LINE

		FRANKFORD LINE TO BRIDGE STREET TO BROAD STREET TO ERIE AVENUE
Passengers carried year 1923-----	51,700,000	40,700,000
Gross revenue-----	1,500,000	1,200,000
Operating expenses and taxes-----	701,000	950,000
Net earnings-----	\$689,000	\$927,000
Interest and Sinking Fund charges-----	500,000	700,000
Surplus-----	189,000	227,000

This change in the assumption as to division of fares effects an increase of \$130,000 in the revenue of the main line to Bridge street for the year 1923. Table No. 5 therefore shows a surplus for the year of \$95,000 against the deficit of \$35,000 in Table No. 4. If we include the branch line to Broad street and Erie avenue, upon which the proportion of surface transfer riders is greater, the changed fare division increases the revenue of the elevated line by about \$230,000 and brings about a surplus from operation of \$144,000.

It would seem more equitable to divide the fare in proportion to the value of the facilities used jointly--thus, as the elevated facilities approximate \$1,000,000 per mile of track in cost, and surface lines \$200,000, and three miles of elevated track are used to one of surface, the fare might be prorated in the proportion of \$3,000,000 to \$200,000, or one to fifteen, thus assigning to the elevated 95 per cent. of the fare.

The statement has been made that the Frankford Elevated cannot be operated on a 5-cent fare without operating deficits. That the arrival at such a conclusion involves various more or less arbitrary assumptions is shown in the preceeding tables. Such a statement does not form a proper basis for the refusal of the Company to operate the line and meet the full costs at the present rate of fare. The same statement can truthfully be made of a large number of the Company's present lines. In fact, the Company has recently contended that the Market Street Subway Elevated Railway has not, to date, paid



6 per cent. cumulative upon the money which has been invested in it. This does not mean that a higher fare should be charged, nor even that the Company's present net income would be greater if the Market Street Subway Line, for instance, were not in existence; for, as stated, these conclusions as to the profitableness of individual lines of a unified system are based on an arbitrary distribution of the joint revenues and operating charges. Some lines may be operated at a loss, but these losses are more than made up on profitable lines because the system as a whole is now shown to be profitable.

In the 1910 audit of the Company's books by the City Controller the ninety-one (91) routes operated by the Company at that time were divided into two classes;

Seventeen (17) lines, on which a profit resulted of \$1,250,000.

Seventy-four (74) lines, on which a loss resulted of \$3,102,000.

Twelve (12) of the seventy-four (74) lines showing a loss in 1910 had shown profits in 1909, and at that time the subway-elevated was classed among the profitable lines, showing a profit for the year of \$257,000; while all the subway-surface lines were classed as unprofitable and charged with an aggregate loss of \$116,000, thus reducing the net subway profit to \$141,000.

This classification was reached by setting against the gross receipts of each route its expenses arbitrarily determined by prorating the total expenses of the unified system (including interest and rentals) to each of the ninety-one (91) routes in proportion to the car mileage operated by each route.

Such a method of "separating the sheep from the goats," or determining which lines were profitable and which unprofitable, is purely arbitrary, but it serves to show that in a unified system the lines are so related that it is almost impossible to apportion either earnings or expenses to individual lines or routes with any approach to exactness. It should be noted, however, that the Company then regarded but 19 per cent. of the routes and route mileage of the unified system as being profitable. If the Company in 1910 had adopted the practice now apparently being carried out by the Company, or abandoning all lines which are clearly unable to support themselves, only a small mileage of track carrying but 37 per cent. of the total passengers would have been retained.

#### ROUTING OF FRANKFORD LINE THROUGH THE BUSINESS DISTRICT

In the City's System as planned and authorized, all routes have been designed to connect residential areas on the outskirts with the Business District in the center of the City. The Frankford line at its inception in 1913, was considered as a part of a northeast-southwest rapid transit route connecting Frankford and the northeast section of the City with Darby or West Philadelphia and passing through the Business District of the City (see maps 43 and 44, Transit Commissioner's 1913 Report). As originally proposed and planned, the existing subway of the Market Street Line was to have served for a time as the connecting link between the Frankford and Darby Lines. It was then estimated, however, that the carrying capacity of the Market Street Subway was not sufficient to accommodate both the





Darby and West Market Street Lines later than 1927. Our recent investigation of service, however, indicates the impossibility of its use by the Darby Line at all.

In 1915, however, the City began construction upon the Frankford Line, believing that the Philadelphia Rapid Transit Company would gladly operate it when convinced that the City was building the line in good faith. Thus the City started work in the middle of the line without providing for a City terminal on the lower end or shops or yards at the upper end. The non-existence of delivery facilities for this line in the center of the City, except those controlled by the Company, is a handicap of which the Company is taking full advantage in its attempts to deal with the City.

The Chestnut Street Subway was designed to supplement the Market Street Subway whenever that line could no longer accommodate the Darby Line. Its construction was authorized in 1916 and \$5,000,000 was then appropriated towards its construction, as an alternate route to be used in case satisfactory terms for the use of the Market Street Subway could not be arranged and municipal operation thereby became necessary, but as municipal operation has not been authorized, no work on this subway has been started.

Today the status of operation of the Frankford Line is as follows:

The main portion of the First Operating Section of the Frankford Line is nearing completion. The Company is operating through its Market Street Subway approximately 180 cars per hour at the time of heaviest load, which is about 75 per cent. of the estimated maximum capacity of the line.

A recent investigation of the service on this line, at the time of heaviest traffic, shows the operation of from 15 to 17 trains per half-hour period and maximum loadings per car of about 170. An average loading of 130 for all cars passing during a half-hour period was observed. A summary of this investigation has been appended to this report. (See Appendix "A"). As these cars contain seats for but 48 passengers each, and as the standard of loading on which all our operating estimates, as well as those of the Company, have been based, allow an average maximum hour load of but 86 per car, it will be seen that the present service is deplorably inadequate and crowding exists far beyond the limits of decency. If the average loading were brought within the limit of even 100 per car, the full car capacity of the subway would be required, if not exceeded at the present time. The present standards of car loading approximate the notoriously indecent conditions in the New York Subway a few years ago, before the opening of the Dual System. No agreement exists between the City and the Company permitting the contemplated connection of the City's System to the Market Street Line at Front and Arch streets and Thirtieth and Market streets. Such a connection at Front and Arch streets without a corresponding connection in the neighborhood of Thirtieth and Market streets would permit the Frankford trains to be routed to Sixty-ninth and Market streets, but the Woodland Avenue Line would still be left without a terminal. In other words, as the City's System is now authorized, an agreement with the Company to use the Frankford Line as an extension of the



Market Street System would transfer the difficulty from the Frankford Line to the Darby Line, and our recent investigation shows the impracticability of making such a connection between the Market Street Line and the Darby Line.

In the report presented to Councils' Committees on the 14th of last November I presented a plan intended to provide a temporary City terminal for the Frankford Line independent of the Philadelphia Rapid Transit Company by the extension of the elevated structure from Front and Arch streets, westward along Arch street to Eighth street, south on Eighth street to Sansom street, and west on Sansom street to Broad street; the object of this extension being to deliver passengers into the heart of the Business District without using the Market Street Subway.

Diagram No. 125 has been prepared with a view of showing the feasibility of an elevated connection between the Darby and Frankford lines independent of the Market Street Line, the continuation of the suggested elevated on Sansom street west to Twenty-fourth street, thence to Market street, connecting with the Woodland Avenue Line. In case of municipal operation of the City's lines this connection would seem to be necessary and desirable.

Map No. 151 shows, on a larger scale, the different plans which have been authorized or suggested for terminal facilities for the City's Frankford and Darby systems in the Business District. From this map it is seen that there are four methods proposed for carrying these lines into and across the Business District:

1--By the use of Market street; and in order to use this route either an agreement must be reached with the Philadelphia Rapid Transit Company or legislation must be secured giving the Public Service Commission the right to compel the joint use of such facilities. The City has endeavored to secure such legislation at the last two sessions of the Legislature, and in each case it has failed of passage.

2--Construct the Chestnut Street Subway, which, under present conditions, will involve an extravagant expenditure and a delay of several years in the operation of the line.

3--Construct the elevated connection shown on Diagram No. 125, which will involve a much smaller investment and reduce the delay very materially.

4--Modify the City's plan so that the Darby Line, instead of connecting to the Market Street Line or to the Frankford Line via the Chestnut Street Subway as now authorized, shall connect with some other line of the City's System. This plan would effect a considerable saving in case the Frankford Line and Market Street Line are through routed.

I wish to call attention at this place to the fact that the delay in starting work upon the Darby Line has been caused chiefly by this lack of a suitable terminal within the Business District, and until the method of operating the Frankford Line has been determined no progress can be made upon the Darby Line. If arrangements





shall be finally made for connecting the Frankford line permanently with the Market Street Subway, a terminal less expensive than the Chestnut Street Subway should be provided for the Carby line, hence the elevated line on Sansom street has been proposed as a substitute.

Our investigation shows that the limit of proper traffic capacity on the Market Street Line as it now exists will soon be reached, if such is not already the case, and the City must give immediate attention to the construction of either the Chestnut Street Subway or the Sansom Street Elevated in order to accommodate future traffic which cannot be carried by the Market Street Line.

Map No. 151 shows the comparative advantages of these lines in location and shows that the chief points of engineering difficulty lie between Twenty-third street and Thirty-second street, including the crossing of the Schuylkill River, and between Front and Arch streets and Second and Chestnut streets. Developments which are taking place in the neighborhood west of Twenty-third street strongly emphasize the importance of a prompt decision in this matter and the securing of the necessary real estate. In the neighborhood of Twenty-fourth and Chestnut streets the amount and location of real estate required would differ as between the various plans. Since the original plans were drawn in 1913 a large amount of building has taken place in this vicinity and the cost of securing any needed real estate is steadily increasing.

It will be readily seen that overloading of the Market Street Subway tracks will not be caused by the trains of the Frankford Line. The addition of the Darby traffic, however, to the already heavy West Philadelphia traffic would far overtax the train capacity of the Market Street Line east of Thirtieth street, hence the necessity for the immediate construction of either the Chestnut Street Subway or the Sansom Street Elevated, in order to secure track capacity and provide a terminal for the Darby Line.

The traffic studies which have been made (see Diagram No. 106) show that if the Frankford Line be through-routed with West Philadelphia, via Market Street Subway, the estimated Frankford traffic; hence, the Subway service on Market street must be determined by the West Philadelphia traffic requirements and the Frankford traffic will not in any degree increase the number of trains or cars per hour operated through the Market Street Subway.

There has been some misunderstanding upon this point, and it should be emphasized that the Frankford Line, if connected to the Market Street Line, would impose no burden whatever upon the present terminal or track facilities controlled by the Company.

#### THE THIRTY-FIFTH WARD BRIDGE LINE OF THE CITY'S SYSTEM

This is the second line of the City's System which has now reached the stage where arrangements for its operation must be made in order to bring about the service for which the district is waiting and for the rendering of which the City has authorized the building of the line. It has been designed to act as a feeder for the Frankford Elevated Line and to extend transit service through the



heart of the Thirty-fifth Ward to the terminus in the City's Farms at Byberry.

Under the ordinance approved July 20, 1916, \$1,200,000 was appropriated

"Toward the construction and improvement of a double-track surface passenger railway, beginning at or near Frankford avenue and Oxford avenue, Castor road, Bustleton avenue to Verree road; thence from the intersection of Bustleton avenue and Verree road through private property along a proposed extension of Verree road to the intersection of Byberry road and Northampton road; thence along Northampton road and Southampton road to the Byberry and Bensalem pike, with all necessary curves, switches, grading and widening of roads, construction of bridges and purchase of private property in connection therewith."

In accord with this authorization bids were received on April 15, 1919, and award was made to the low bidder, North American Railway Construction Company of Chicago, for the First Operating Section of the line extending from Frankford avenue, in Frankford, thence along Oxford avenue, Castor and Bustleton avenues to Lott street, Bustleton, a distance of approximately six (6) miles.

Part of this line has been built with girder track and part with "T" rail. Part of it is permanent and part temporary location. This was necessary because certain of the streets specified had not been placed at the established grade. At the crossing of the Pennypack Creek it was found necessary to build a temporary single-track trestle to the east of the existing bridge at a higher grade than the existing highway. No work has been done between Lott street, in Bustleton, and the terminus of the road in the Byberry Farms because certain of the streets specified as the route to be followed have not been dedicated or physically opened, and the Department holds that it is neither just nor equitable to condemn a right-of-way for a trolley line through raw farm land when the construction of that line will undoubtedly be of great benefit to the abutting property.

In regard to the operation of this line, the City faces precisely the same condition as to its equipment as in the case of the Frankford Elevated. In addition to the necessary rolling stock, the operation of the line will require the overhead construction, the sub-station electrical feeders, car barns, etc., which were not included in the estimate and on which the appropriation of \$1,200,000 for the construction of the line was based.

The North American Railway Construction Company has completed its contract and the line between Frankford and Bustleton is now clamoring for an operator. The City has expended to date upon this line about \$382,000, and the interest is accruing upon this expenditure at the rate of \$20,000 per year. It is therefore vitally important, both from the financial standpoint as well as the standpoint of service, that the operation of this line be arranged simultaneously with that of the Frankford Elevated Railway.





## CONCLUSIONS AND RECOMMENDATIONS

Recognizing the proved axiom that a monopoly of transit privileges affords special advantages to the Company in operation, and to the public in service, the City, in providing transit facilities, which the P.R.T. Company was unable to furnish, intended those facilities to supplement--not supplant--the existing system. As a consolidation of the Company's and the City's lines would form a complete transit monopoly--economical in operation and efficient in service--the City's representatives assumed that the P.R.T. Company would lease and operate the municipal facilities, especially as a high-speed competitive system might seriously endanger the solvency of the P. R. T. Company. The first line of the City's contemplated system, the Frankford Elevated Railway has not reached the stage where 80 per cent. of the physical structure is either completed or under contract. The uncompleted 20 per cent., however, is not the controlling factor in determining when the line can be of service to the public. The initiation of actual service is dependent upon two things, for neither of which provision yet exists--the final determination as to the operator for the line, which is the more important, and the purchase and installation of the necessary cars and spurtenant equipment.

In authorizing the permanent structures to be built, it was understood that the line would be operated by the Philadelphia Rapid Transit Company, which would also furnish the cars and other equipment; consequently, the City has provided no funds to purchase those items. The necessity for an additional City loan for the purchase of the equipment for the Frankford Line is dependent upon who operates the line, and whether or not the Company, if it shall agree to become the operator, will also supply the equipment. The Department, therefore, can make no further substantial progress towards completion of the line until this controlling factor--**the Operator**--shall have been determined.

The operation of this line must be either by the Philadelphia Rapid Transit Company, as the agent or lessee of the City, or by the City, as a direct municipal undertaking. As has been stated, the Public Service Commission is on record that in its opinion the public interest will be best served by the operation of the City's System by the Philadelphia Rapid Transit Company as a part of its unified service. Such operation can only begin after a satisfactory operating agreement has been reached between the City and the Company. During the last seven years a number of attempts have been made to draft an agreement, covering the operation by the Company of the City's authorized and contemplated system. The last one, which was a virtual partnership between the City and the Company, was refused approval by the Public Service Commission over a year ago, as not being in the public interest. At the present time, it does not seem to be legal or feasible to negotiate a contract upon similar lines, and it probably is not feasible to secure the opinion of the Commission upon a form of operating contract prior to its acceptance by the Company. I have therefore outlined an operating agreement which contemplates a direct lease of the City's transit property to the Company, upon definite terms protecting the City, but free from the major objections raised by the Public Service Commission against the agreement which it rejected.



The outline agreement appeared in the report prepared for submission to Councils on November 21st last as a counter-proposal to the one submitted by the Company, wherein the Company proposed to act as virtually the City's agent and operate the line at the City's financial risk. As that meeting failed to materialize on account of the withdrawal by the Company of its proposals, and as your resolution requests all collateral information in connection with this work that may be of benefit in your deliberations on the subject, I present the skeleton agreement herewith for your consideration:

**"Investment.**

"City to furnish elevated structure from connection with Market Street Subway-Elevated Line to Bridge street, including foundations and superstructure, deck, platforms, track work, third-rail, signals, including miscellaneous construction work. City also to furnish necessary real estate, station buildings with equipment, car yard and the required engineering and capital charges which form part of the construction cost.

"Company to furnish cars, sub-stations, feeders and cables and other necessary power facilities and real estate necessary therefor; also, telephone apparatus and shop tools machinery, etc., all equipment necessary (in addition to that furnished by City) for the operation of the line.

"City and Company will each furnish all additional facilities of the type specified above during the term of the lease.

"City funds to be expended under City supervision; Company funds under Company supervision.

**"Operation.**

"Company to operate the Frankford Elevated Railway in conjunction with the Market Street Subway-Elevated Line, as one continuous line.

**"Fare.**

"The fare shall be five cents for a continuous ride upon any part of the Frankford-Market Street Subway-Elevated, with free surface transfer privileges on the Frankford Elevated corresponding to those in West Philadelphia. Rates of fare subject to revision by Public Service Commission.

**"Term.**

"The term of the lease shall be from July 1, 1920, to July 1, 1957, with provision for cancellation by City upon reasonable notice and upon fair terms.

**"Rental.**

"Company to pay City an annual rental equal to 4 per cent. of City's initial investment in Frankford Elevated. This rental to be increased by amounts equal to the actual interest charges on additional investments made by the City in the line during the term of the lease. This rental to be a direct obligation of the Company--not contingent upon any other payment. Sinking fund payments on City bonds not being included in rental requirements.





**"Repairs and Amortization.**

"Company at its own expense to keep in good state of repair facilities furnished by the City. Company also to amortize out of earnings for benefit of City, investment of Company in Frankford Elevated.

**"Supervision.**

"Lease to contain provisions giving to the City a voice in the character of service given the patrons of the Frankford Elevated.

**"Other City-Built Lines.**

"Company to agree to operate other lines built by the City upon terms mutually agreed upon, or upon terms to be settled by arbitration of such agreements is not obtainable."

I believe that the terms outlined are fair to all parties concerned--the Public, the City and the Company, and that an agreement drawn on these terms should receive the approval of the Public Service Commission. I, therefore, urge that these terms be placed in legal form and offered to the Company promptly.

In case a satisfactory agreement cannot be reached with the Company, there are two courses open to the City:

- 1--The City may petition the Public Service Commission that a peremptory order be issued to the Company, under the general provisions of the Public Service Company Law, requiring the Company to provide the necessary equipment and operate the Frankford Elevated Railway; or
- 2--Abandon all further negotiations with the Philadelphia Rapid Transit Company and proceed at once to authorize and finance the completion and equipment of the line, including a delivery terminal in the central business district, to the end that the line may be operated as a municipal undertaking.

Although this agreement has been drawn specifically to secure the immediate operation of the Frankford Elevated Line, it also obligates the Company to undertake the operation of such other lines as the City may build upon terms fixed by agreement or arbitration. Under this provision, the Company would be obligated to operate the Thirty-fifty Ward Line, the first section of which is now ready for equipment and operation.

As the construction of these lines has now reached a stage where serious delay is occurring because this controlling matter of operation has not been determined, I submit to your Honorable Body the urgency for a prompt determination of that question.

Respectfully submitted,

WILLIAM S. BULLING

Director.



## MARKET STREET ELEVATED TRAFFIC AND SERVICE

A recent count of the west-bound traffic and service on the Market Street Elevated at Thirty-second street showed 29 trains operated during the maximum hour. These trains consisted of 179 cars and carried 21,667 passengers, an extremely heavy average loading of 121 passengers per car.

The average loading of 86 per car during the maximum rush hour has been accepted by the Company and the Transit Department for all calculations of car requirements of the Market Street Line and Frankford Line. This average is based upon a maximum loading of 107 passengers during the rush hour, as practical experience indicates that the average loading does not exceed 80 per cent. of the maximum loading during the rush hour. In the Market street car, including platform, there is standing capacity for 59 passengers, allowing standing space of four square feet per passenger, and seats for 48 passengers.

To handle Market Street Elevated load of 21,667 for the hour counted with the above accepted standard of loading would require 252 cars per hour, 73 more than the 179 cars actually provided. The present traffic requirements therefore call for thirty-six 7-car trains, which approximates the capacity of the line during rush periods. This condition, while indicating the immediate necessity for the construction and operation of the Darby Elevated in order to relieve the Market Street Elevated Line as well as the surface car lines to the southwest, virtually negatives the possibility of using the Market Street Subway as a delivery terminal for the Darby Line.

The period of most serious overloading was found to be between 5.30 and 6.00 P. M., during which half-hour 92 cars in 15 trains carried 12,005 passengers, an average of 130.5 per car.

During this period nearly 90 per cent. of the cars operated were loaded in excess of their seating and standing capacity. The following tabulation gives the loading of cars during the half-hour of heaviest loading:

Loading		Number of cars
	Over 170.....	1
Between 160 and 170.....		6
Between 150 and 160.....		11
Between 140 and 150.....		19
Between 130 and 140.....		16
Between 120 and 130.....		10
Between 110 and 120.....		7
Between 100 and 110.....		10
Between 90 and 100.....		8
Between 80 and 90.....		2
Between 70 and 80.....		1





To properly provide for the 12,005 passengers carried past the maximum load point in the heaviest half-hour of the evening rush period, assuming each car to be loaded to the standard capacity of 107 there would be 112 cars required as compared with 92 actually operated. Allowing for an average loading of 80 per cent. of the maximum allowable loading (80 per cent. of 107 = 86), about 140 cars per half-hour would have to be operated. The statistics of the half-hour of heaviest car loading are as follows:

Trains operated.....	15
Cars operated.....	92
Total passengers carried past maximum load point....	12,005
Seats provided .....	4,316
Standing passengers.....	7,689
Passengers carried per seat.....	2.78
Seating and standing capacity of car.....	107
Cars required to provide seating and standing capacity for total load carried.....	112
Cars required to carry total passengers--assuming average load of 86 (80 per cent. of maximum capacity of 107).....	140
Cars actually operated.....	92

#### MARKET STREET ELEVATED PASSENGER RAILWAY

EVENING RUSH PERIOD--February 19, 1920

Maximum Hour from 5.15 to 6.15 P.M.:

Trains operated.....	29
Cars.....	179
Average load per car.....	121
Maximum car load.....	173
Cars per train: 5 trains of 7 cars 24 trains of 6 cars	

Half-Hour Heaviest Car Loading:

Trains operated.....	15
Cars.....	92
Average load per car.....	130.5
Cars per train: 2 trains of 7 cars 13 trains of 6 cars	

SUMMARY OF TRAFFIC COUNT ON MARKET STREET ELEVATED RAILWAY--EVENING RUSH PERIOD--FEBRUARY 19, 1920



	Number of			During period	
	Train	Cars	Passenger Carried	Maximum Loading Per car	Average load per car
15-Minute Period:					
5.00 to 5.14 P.M.-----	7	42	3,022	121	72.0
5.15 to 5.29 P.M.-----	6	36	4,346	160	120.7
5.30 to 5.44 P.M.-----	6	36	4,875	173	135.4
5.45 to 5.59 P.M.-----	8	50	6,300	158	126.0
6.00 to 6.14 P.M.-----	9	56	5,965	173	106.5
6.15 to 6.29 P.M.-----	8	44	4,109	158	98.3
Maximum Hours-----	29	179	21,667	173	121
Half-Hour of Maximum Car Loading-----	15	92	12,005	173	130.5

**Note:** The Market Street Subway-Elevated car has a seating capacity of 48 and a standing capacity of 59, which allows 4 square feet of standing space, including platform, for each standing passenger. This gives a total capacity of 107 passengers, which has been generally accepted as the proper limit of maximum loading for Market Street car. An average loading of 86 per car (80% of maximum loading) during the rush hour has been assumed in all calculations of Market street capacity made by the Company and the Department.













